RELIEF MAP

OF

CALIFORNIA

BY

N. F. DRAKE

DEPARTMENT OF GEOLOGY, LELAND STANFORD JR. UNIVERSITY.

ISSUED BY THE

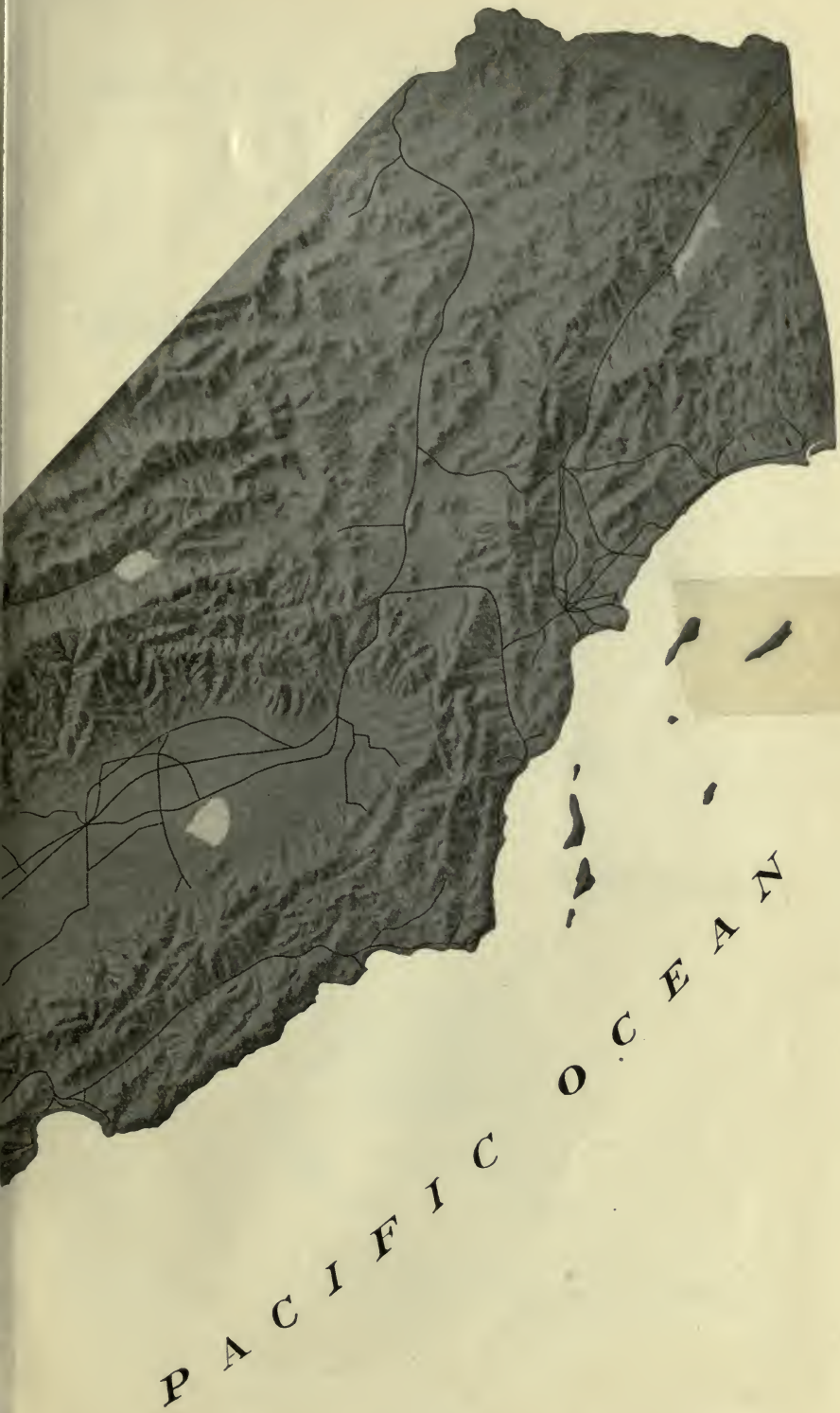
STATE MINING BUREAU,

FERRY BUILDING,

SAN FRANCISCO.

LEWIS E. AUBURY,

State Mineralogist.


PACIFIC OCEAN

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A BIBLIOGRAPHY

RELATING TO THE

Geology, Paleontology, and Mineral Resources of California.

ISSUED BY

THE CALIFORNIA STATE MINING BUREAU,

FERRY BUILDING, SAN FRANCISCO.

BY AUTHORITY OF

HON. GEORGE C. PARDEE,

GOVERNOR OF CALIFORNIA.

LEWIS E. AUBURY, - - State Mineralogist.

SACRAMENTO.
W. W. SHANNON, - - - SUPERINTENDENT STATE PRINTING.
1904.

LETTERS OF TRANSMITTAL.

To Hon. George C. Pardee, *Governor of the State of California, and the Honorable Board of Trustees of the State Mining Bureau.*

Gentlemen: I have the honor to transmit Bulletin No. 30, "A Bibliography Relating to the Geology, Palæontology, and Mineral Resources of California," this being the second edition, which has been revised and brought up to date by the author of both editions, Lieut. Col. A. W. Vogdes, Artillery Corps, U. S. A.

I wish to extend many thanks to Colonel Vogdes for his kind assistance to this department in donating this work, which will prove invaluable to the seeker for information pertaining to the literature which has been published relating to the subjects above enumerated.

Very respectfully,

LEWIS E. AUBURY,
State Mineralogist.

San Francisco, June 30, 1903.

Hon. Lewis E. Aubury, *State Mineralogist.*

Dear Sir: I have the honor to submit this bibliography for publication by the State Mining Bureau, with the following remarks:

Since the publications of the first Geological Survey of the State, in 1851, by Dr. Trask, a large number of papers on geology, mineral resources, palæontology, and descriptions of local mining regions have appeared in special publications or in the transactions of learned societies. Besides these there are many articles incorporated in the official publications of the United States, etc., etc. I have labored to bring this mass of literature together and make it accessible to the student and

general reader by giving not only a catalogue of the books and maps, but also a general idea of their contents. As the palæontologist has to deal with the species described under each genus I have included a full list of fossils, which will save the student many a weary hour of laborious research through many volumes.

The catalogue has been arranged under different heads, giving the student a direct reference to the contents of different publications. Following is the arrangement:

Part I. Publications of the State of California.

Part II. Publications of the United States Government.

Part III. Publications of Scientific Societies.

Part IV. Publications of State Geological Surveys other than that of California.

Part V. Miscellaneous Publications. Many of them are references to early reports on gold and other minerals, including trips to the gold fields of California. All of these books contain references to mines and local geology.

Part VI. A list of the published maps of California. This will be found useful to all citizens of the State.

ANTHONY W. VOGDES.

San Diego, California, June 30, 1903.

A BIBLIOGRAPHY

RELATING TO

The Geology, Paleontology, and Mineral Resources of California.

By ANTHONY W. VOGDES,
Lieutenant-Colonel Artillery Corps, U. S. A.,

Fellow American Geological Society, American Association for the Advancement of Science; Member of the New York Academy of Sciences; also of the Georgia, Philadelphia, Chicago, and California Academies of Sciences.

PART I.

Publications relating to the Geology, Paleontology, and Mineral Resources of California, issued under the authority of the State.

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PART I.

PUBLICATIONS OF THE STATE OF CALIFORNIA.

FIRST GEOLOGICAL SURVEY OF CALIFORNIA.

DR. JOHN B. TRASK, State Geologist.

Report of the special committee in favor of a geological survey of California. Submitted by Mr. Randall, April 24, 1851. 19 pp.

Report of 1853, geology of the Sierra Nevada or California range; by John B. Trask. Sacramento, 1853. 31 pp. (2,000 copies printed.)

This report contains a sketch of the geology and mineral resources of the eastern valleys of the Sacramento and San Joaquin and to the coast line within the forty-first and forty-second degrees of north latitude, from personal observations made during the years 1850-52. Reviewed Mining Magazine, 1853, vol. 1, pp. 6-23.

Report on the geology of the coast mountains, embracing their agricultural resources and mineral productions, also portions of the middle and northern mining districts; by Dr. John B. Trask, State Geologist. Senate Doc. No. 14. Sacramento, 1855. 95 pp.

This report contains a description of the physical geography of the coast mountains; geology of the coast mountains; Tertiary rocks of the coast mountains; primitive rocks of the coast mountains; volcanic rocks of the coast mountains; geology of the San Bernardino Mountains; stratified rocks of the San Bernardino chain and plains of Los Angeles; extent of the infusorial group; plains of Los Angeles; artesian borings; soils and productions of Los Angeles; mineral productions of Los Angeles; country north of the American River; mineral district of the upper Sacramento Valley; geology of the northern coast mountains; local geology of the northern coast mountains; Carboniferous limestone of the eastern part of Shasta County; Trinity County; structure of the Sacramento Valley; Tertiary rocks and other deposits of the Sierra Nevada; placer mining; quartz veins; quartz mines, with descriptions of mines, and statistics.

Report on the geology of the coast mountains and part of the Sierra Nevada, embracing their industrial resources in agriculture and mining; by Dr. John B. Trask, State Geologist. Assembly Doc. No. 9, Session of 1854. 92 pp.

This report contains a description of the geology of the Monte Diablo range, Salinas Valley, from Point Pinos to the Nacimiento River, Santa Cruz Mountains; structure of the valleys of Sacramento and San Joaquin; review of the geological changes in the coast mountains and Monte Diablo range; classification of the rocks of the coast mountains and Monte Diablo range; position and relation of the volcanic rocks to the Tertiaries; volcanic rocks preceding the Tertiary era; most recent volcanic rocks of the coast mountains; changes of level and river terraces; soils of the valley Santa Clara and shores of the Bay of San Francisco; valley of the Salinas; soils of the Salinas; Pajaro Valley; Livermore Valley; mineral resources of the coast mountains; mineral districts, embracing parts of the counties of Nevada, Placer, El Dorado, and Calaveras; quartz veins, and their relative age in California; character and position of the older veins below the surface; present government of metallic veins; descriptions of mines, with list of gold mines.

Report on the geology of northern and southern California, embracing the mineral and agricultural resources of those sections; with statistics of the northern, southern, and middle mines; by Dr. John B. Trask. Assembly Doc. No. 14, Session of 1856. 66 pp.

This report contains a description of the physical geography lying in the coast mountains north of the Bay of San Francisco; geological structure of the coast mountains; mineral character of the primitive rocks of the coast mountains; soils of Petaluma County; plains west of the Sacramento River; San Bernardino; geology of Table Mountain, Tuolumne County; Carboniferous rocks of the northern district; salines of the upper Sacramento Valley; Mammoth Mines, Seventy-six, Jamison Creek; descriptions of mines, etc.; analyses of saline waters from Lick Springs, Shasta County; gold mines in operation in 1855; table of altitudes.

SECOND GEOLOGICAL SURVEY OF CALIFORNIA.

J. D. WHITNEY, State Geologist.

The Geological Survey of California. An address delivered before the Legislature of California, at Sacramento, Tuesday evening, March 12, 1861, by J. D. Whitney, State Geologist. To which is appended a copy of the Act authorizing the survey. San Francisco, 1861. 50 pp.

Letter of the State Geologist relative to the progress of the State Geological Survey, by J. D. Whitney. San Francisco, 1862. 7 pp.

Lecture on geology, delivered before the Legislature of California, at San Francisco, Tuesday evening, February 27, 1862, by J. D. Whitney. San Francisco, 1862. 33 pp.

Lecture on geology, delivered before the Legislature of California, at Sacramento, Tuesday evening, March 19, 1863, by J. D. Whitney. Sacramento, 1863. 17 pp.

Annual report of the State Geologist of California for the year 1862. Sacramento, 1862. 12 pp.

Annual report of the State Geologist for the year 1863. Sacramento, 1864. 7 pp.

Letter of the State Geologist, relative to the progress of the State Geological Survey during the years 1864-65, by J. D. Whitney. Sacramento, 1866. 14 pp.

Letter of the State Geologist, relative to the progress of the State Geological Survey during the years 1866-67, by J. D. Whitney. Sacramento, 1867. 15 pp.

An address on the propriety of continuing the State Geological Survey of California, delivered before the Legislature, January, 1868, by J. D. Whitney. San Francisco, 1868. 23 pp.

Report of the State Geologist on the condition of the Geological Survey of California, by J. D. Whitney. Sacramento, 1869. 7 pp.

Letter of the State Geologist relative to the progress of the Geological Survey during the years 1870-71. Sacramento, 1871. 13 pp.

Statement of the progress of the State Geological Survey of California during the years 1872-73, by J. D. Whitney. Sacramento, 1873. 14 pp.

Report of the Joint Committee on the Geological Survey of the State, made to the Legislature in 1874.

Report of sub-committee of the Committee on Mines and Mining Interests of the Senate, concerning the State Geological Survey. Sacramento, 1866. 5 pp.

Mining Statistics, No. 1. Tabular statement of the condition of the auriferous quartz mines and mills in that part of Mariposa and Tuolumne counties lying between the Merced and Stanislaus rivers; by A. Remond. April, 1866. 16 pp.

The Yosemite Book. A description of the Yosemite Valley and the adjacent regions of the Sierra Nevada and Big Trees of California. New York, 1868. pp. 4-116, 2 maps and 28 photographs. 4to. (250 copies printed.)

Another edition. Cambridge, 1870. viii and 155 pp., and 2 maps.

Another edition. Cambridge, 1871. vii and 133 pp., and 2 maps.

Another edition, revised and corrected. Cambridge, 1874. viii and 186 pp., and 4 maps.

Geographical catalogue of the mollusca found west of the Rocky Mountains, between latitudes 33 and 49 deg.; by J. G. Cooper. San Francisco, 1867. 40 pp.

This catalogue was based on that published by P. P. Carpenter, Brit. Assoc. Adv. Sci., 1863, with the addition of about 130 species. It contains the names and localities of 825 species, so printed that the catalogue may serve for labels as well as a check-list.

Catalogue of the invertebrate fossils of the western slope of the United States, Part II; by J. G. Cooper. San Francisco, 1871. 39 pp.

This catalogue was intended merely as a check-list and for labels; supplementing the catalogue published in 1867.

The author gives a list of the Post Pliocene, Pliocene, and Miocene fossils described in detail in "Palæontology of California."

Palæontology, vol. 1. Carboniferous and Jurassic fossils, by F. B. Meek. Triassic and Cretaceous fossils, by W. M. Gabb. Philadelphia, 1864. xx and 243 pp., 32 pl.

The following fossils are described and illustrated in this volume:

CARBONIFEROUS; by F. B. Meek (pp. 3-16, pl. 1-2)—

FORAMINIFERA—*Fusulina robusta*, Meek; *F. gracilis*, Meek; *F. cylindrica*, Fischer?

ZOOPHYTA—*Lithostrotion mammillare?* Castlenau; *L.? Californiense*, Meek; *L.* sp.?; *Clisiophyllum Gabbi*, Meek.

BRACHIOPODA—*Orthis* (sp. undt.); *Productus semireticulatus*, Martin; *Rhynchonella* (sp. undt.); *Spirifer lineatus*, Martin?; *Spiriferina* (sp. undt.); *Retzia compressa*, Meek.

GASTEROPODA—*Euomphalus Whitneyi*, Meek.

Palæontology, vol. 1. (*Continued.*)

TRIASSIC FOSSILS OF CALIFORNIA AND ADJACENT TERRITORIES; by W. M. Gabb (pp. 19-35, pl. 3-6)—

Orthoceratites Blakei, n.sp.; *Nautilus Whitneyi*, n.sp.; *N. multicameratus*, n.sp.; *Goniatites laevidorsatus*, Hauer; *Ceratites Haidingeri*, Hauer; *C. Whitneyi*, n.sp.; *Ammonites Blakei*, n.sp.; *A. ausseanus*, Hauer; *A. Homfrayi*, n.sp.; *A. Billingsianus*, n.sp.; *A. Ramsaueri?* Quenst; *Myacites (Panopoea?) Humboldtensis*, n.sp.; *Panopoea? Remondi; Corbula Blakei*, n.sp.; *Mytilus Homfrayi*, n.sp.; *Avicula Homfrayi*, n.sp.; *A. macronata*, n.sp.; *Halobia? dubia*, n.sp.; *Monotis subcircularis*, n.sp.; *Rhynchopterus*, n.gen.; *R. obesus*, n.sp.; *Posidonomya stella*, n.sp.; *P. Daytonensis*, n.sp.; *Myophoria alta*, n.sp.; *Pecten deformis*, n.sp.; *Terebratula Humboldtensis*, n.sp.; *Rhynchonella lingulata*, n.sp.; *R. aequiplicata*, n.sp.; *Spirifer Homfrayi*, n.sp.

JURASSIC FOSSILS; by F. B. Meek (pp. 39-53, pl. 7-8)—

Rhynchonella gnathophora, Meek; *Terebratula* sp.?; *Gryphaea* sp.?; *Lima? sinuata*, Meek; *L. recticostata*, Meek; *L.? cuneata*, Meek; *Pecten acutiplicatus*, Meek; *Inoceramus? obliquus*, Meek; *I.? rectangulus*, Meek; *Trigonia pandicosta*, Meek; *Mytilus multistriatus*, Meek; *Astarte ventricosa*, Meek; *Unicardium? gibbosum*, Meek; *Myacites depressus*, Meek; *Belemnites* sp.?

CRETACEOUS FOSSILS; by W. M. Gabb (pp. 51-217, pl. 9-32)—

CRUSTACEA—*Callianassa Stimpsoni*, n.sp.

CEPHALOPODA—*Belemnites impressus*, n.sp.; *Nautilus Texanus?* Shum.; *Aturia Mathewsoni*, n.sp.; *Ammonites subtricarinatus*, D'Orb; *A. Newberryanus*, Meek; *A. Breweri*, n.sp.; *A. Haydeni*, n.sp.; *A. Peruvianus*, DeBuch?; *A. Traski*, n.sp.; *A. ramosus*, Meek; *A. Hoffmanni*, n.sp.; *A. Remondi*, n.sp.; *A. Batesi*, Trask; *A. Chicoensis*, Trask; *A. complexus*, H. & M.?; *A. Cooperi*, n.sp.; *Hamites Vancouverensis*, n.sp.; *Helicoceras vermicularis*, n.sp.; *H. Breweri*, n.sp.; *H. declive*, n.sp.; *Turrilites* (sp. undt.); *Ptychoceras aequicostatus*, n.sp.; *P. (? Hamites?) quadratus*, n.sp.; *Crioceras (Ancyloceras?) Remondi*, n.sp.; *C. latus*, n.sp.; *C. percostatus*, n.sp.; *Ancyloceras* (sp. undt.); *Baculites Chicoensis*, Trask; *B.* (sp. undt.).

GASTEROPODA—*Typhis antiquus*, n.sp.; *Fusus Martinez*, n.sp.; *F. Mathewsoni*, n.sp.; *F. Averilli*, n.sp.; *F. diaboli*, n.sp.; *F. aratus*, n.sp.; *F. flexuosus*, n.sp.; *F. Kingi*, n.sp.; *F. Californicus*, Conrad; subgen. *Hemifusus; Fusus* (*Hemifusus*) *Horni; F.* (*H.*) *Cooperi*, n.sp.; *F. (H.) Remondi*, n.sp.; cf. *Pyrula penita*, Conrad; *Neptunea curvirostris*, n.sp.; *N. ponderosa*, n.sp.; *N. perforata; ? N. supraplicata*, n.sp.; *N. Hoffmanni*, n.sp.; *N. gracilis*, n.sp.; *Perissolax brevirostris*, n.sp.; *P. Blakei*, Conrad; *Turris Claytonensis*, n.sp.; *T.* (subgen. *Drillia*) *varicostata*, n.sp.; *Cordiera microptygma*, n.sp.; *Tritonium Horni*, n.sp.; *T. Diegoensis*, n.sp.; *T. paucivaricatum*, n.sp.; *Cancellaria* (Heilprin, Ter. Geol., p. 113; badly figured); *T. Whitneyi*, n.sp.; *Buccinum liratum*, n.sp.; *Nassa cretacea*, n.sp.; *N. antiquata*, n.sp.; *Haydenia*, n.gen.; *H. impressa*, n.sp.; *Pseudoliva lineata*, n.sp.; *P. volutaeformis*, n.sp.; *Olivella Mathewsoni*, n.sp.; *Ancillaria elongata*, n.sp.; *? Fasciolaria laeviuscula*, n.sp.; *F. sinuata*, n.sp.; *? F. Io.*, n.sp.; *Volutilithes Navar-*

Palæontology, vol. 1. (*Continued.*)

CRETACEOUS FOSSILS; by W. M. Gabb.

roensis, Shum.; *Mitra cretacea*, n.sp.; *Whitneya*, n.gen.; *W. ficus*, n.sp.; *Morrio* (subgen. *Sconsia*); *M. tuberculatus*, n.sp.; *Ficus?*; *F. cypraeoides*, n.sp.; *Lunatia avellana*, n.sp.; *L. Shumardiana*, n.sp.; *L. Horni*, n.sp.; *L. nuciformis*, n.sp.?; *L.* (*Gyrodes?*) *Conradiana*, n.sp.; *Gyrodes expansa*, n.sp.; *Neverita secta*, n.sp.; *Naticina obliqua*, n.sp.; (*Sigaretus*, Heilprin, Ter. Geol., p. 113); *Amauropsis oviformis*, n.sp.; *A. alveata*, n.sp.; *Cinulia obliqua*, n.sp.; *C. Mathewsoni*, n.sp.; *C. pinguis*, n.sp.; *Ringicula varia*, n.sp.; *Nerinea dispar*, n.sp.; *Acteonina? pupoides*, n.sp.; *A. Californica*, n.sp.; *Globiconcha* (*Phasianella?*) *Remondi*, n.sp.; *Cylindrites brevis*, n.sp.; *Chemnitzia Spillmani*, Conrad; *Niso polita*, n.sp.; *Cerithiopsis alternata*; *Architectonica Veatchi*, n.sp.; *A. cognata*, n.sp.; *A. Horni*, n.sp.; *A. inornata*, n.sp.; *Margaritella crenulata*, n.sp.; *M. globosa*, n.sp.; *Discohelix leana*, n.sp.; *Straparollus paucivolus*, n.sp.; *S. lens*, n.sp.; *Angaria ornatissima*, n.sp.; *Conus Remondi* (*Volutilithes Californica*, Conrad); *C. Horni*, n.sp.; *C. sinuatus*, n.sp.; *Rostellaria* (subgen. *Rimella*); *R. canalifera*, n.sp.; *R.* (*Rimella*) *simplex*, n.sp.; *Pugnellus hamulus*, n.sp.; *P. manubriatus*, n.sp.; *Tessarolax*, n.gen.; *T. distorta*, n.sp.; *Aporrhais falciformis*, n.sp.; *A. angulata*, n.sp.; *A. Californica*, n.sp.; *A. exilis*, n.sp.; *Cypraea? Bayerquei*, n.sp.; *Potamides diadema*, n.sp.; *P. tenuis*, n.sp.; *Littorina? compacta*, n.sp.; *Turritella infralineata*, n.sp.; *T. seriatim-granulata*, Rœmer; *T. Veatchi*, n.sp.; *T. Chicoensis*, n.sp.; *T. Uvasana*, Conrad; *T. Saffordi*, Gabb; *T. robusta*, n.sp.; *Galerus excentricus*, n.sp.; *Crypta* (subgen. *Spirocrypta*); *C. pileum*, n.sp.; *Nerita deformis*, n.sp.; *N. cuneata*, n.sp.; *Lysis*, n.gen.; *L. duplicosta*, n.sp.; *Dentalium* (*Ditrupa?*) *pusillum*, n.sp.; *D. Cooperi*, n.sp.; *D. stramineum*, n.sp.; *Emarginula radiata*, n.sp.; *Patella Traski*, n.sp.; *Helcion? circularis*, n.sp.; *H. dichotoma*, n.sp.; *Anisomyon Meeki*, n.sp.; *Actaeon impressus*, n.sp.; *Bulla Horni*, n.sp.; *Cylichna costata*, n.sp.; *Megistostoma*, n.gen.; *M. striata*, n.sp. (Heilprin, Ter. Geol., p. 113, refers this to *Bullaea*, cf. *Bullaea expansa*, Dixson).

CONCHIFERA—*Martesia clausa*, n.sp.; *Turnus*, n.gen.; *T. plenus*, n.sp.; *Solen parallelus*, n.sp.; *Pharella alta*, n.sp.; *Siliqua Oregonensis*, n.sp.; *Panopaea concentrica*, n.sp.; *Corbula? primorsa*, n.sp.; *C. Traski*, n.sp.; *C. cultriformis*, n.sp.; *C. Horni*, n.sp.; *C. parilis*, n.sp.; *Anatina Tryoniana*, n.sp.; *A. inaequilateralis*, n.sp.; *A.? lata*, n.sp.; *Pholadomya Breweri*, n.sp.; *P. nasuta*, n.sp.; *Neaera dolabraeformis*, n.sp.; *Mactra Ashburneri*, n.sp.; *Lutraria truncata*, n.sp.; *Asaphis undulata*, n.sp.; *Gari? texta*, n.sp.; *Tellina longa*, n.sp.; *T. Remondi*, n.sp.; *T. Hoffmanniana*, n.sp.; *T. monilifera*, n.sp.; *T. ooides*, n.sp.; *T. Mathewsoni*, n.sp.; *T. decurtata*, n.sp.; *T.? quadrata*, n.sp.; *T. Ashburneri*, n.sp.; *T.* (*? Sanguinolaria*) *Whitneyi*, n.sp.; *T. parilis*, n.sp.; *T. Horni*, n.sp.; *T Californica*, n.sp.; *Venus* (*Mercenaria?*) *varians*, n.sp.; *V. Veatchi*, n.sp.; *V. lenticularis*, n.sp.; *V. tetrahedra*, n.sp.; *Meretrix Uvasana*, Conrad; *M. lens*, n.sp.; *M. Horni*, n.sp.; *M. nitida*, n.sp.; *M. longa*, n.sp.; *M. arata*, n.sp.; *M. ovalis*, n.sp.; *M. Californica*, Conrad; *Dosinia elevata*, Gabb (Heilprin, Ter. Geol., p. 115, refers this to *Dosiniopsis Meeki*, Conrad); *D. pertenuis*, n.sp.; *D. gyrata*, n.sp.; *D. inflata*, n.sp.; *Tapes Conradiana*, n.sp.; *T.? quadrata*, n.sp.; *Trapezium carinatum*, n.sp.; *Cyprinella*, n.gen.; *C. tenuis*, n.sp.; *Cardium* (*Laevicardium*)

Palæontology, vol. 1. (*Continued.*)

CRETACEOUS FOSSILS; by W. M. Gabb.

annulatum, n.sp.; *C. Remondianum*, n.sp.; *C. Cooperi*, n.sp., *C. Breweri*, n.sp.; *C.* (*Protocardium*) *Placerensis*, n.sp.; *Cardita Horni*, n.sp.; *Lucina nasuta*, n.sp.; *L. postradiata*, n.sp.; *L. subcircularis*, n.sp.; *L. cumulata*, n.sp.; *L.? cretacea*, n.sp.; *Loripes? dubia*, n.sp.; *Mysia? polita*, n.sp.; *Astarte Conradiana*, n.sp.; *A. Mathewsoni*, n.sp.; *A. Tuscana*, n.sp.; *Eriphyla*, n.gen.; *E. umbonata*, n.sp.; *Crassatella grandis*, n.sp.; *Anthonya*, n.gen.; *A. cultriformis*, n.sp.; *Unio penultimus*, n.sp.; *Mytilus pauperculus*, n.sp.; *M. ascia*, n.sp.; *M. humerus*, Conrad; *Modiola Siskiyouensis*, n.sp.; *M. ornata*, n.sp.; *M. cylindrica*, n.sp.; *Lithophagus oviformis*, n.sp.; *Septifer dichotomus*, n.sp.; *Crenella concentrica*, n.sp.; *Avicula pellucida*, n.sp.; *Inoceramus Piochi*, n.sp.; *Pinna Breweri*, n.sp.; *Trigonia Tryoniana*, n.sp.; *T. Evansi*, Meek; *T. Gibboniana*, Lea?; *Meekia*, n.gen; *M. Sella*, n.sp. (there is already a genus named *Meekella*, after Meek, so this will not stand); *M. radiata*, n.sp.; *M. navis*, n.sp.; *Arca Breweriana*, n.sp.; *A. Horni*, n.sp.; *A. gravida*, n.sp.; *A. decurtata*, n.sp.; *Cucullaea Mathewsoni*, n.sp.; *C. truncata*, n.sp.; *Axinaea Veatchi*, n.sp.; *A.* (*Limopsis?*) *sagittata*, n.sp.; *A. cor*, n.sp.; *Nucula truncata*, n.sp.; *Leda protexta?*, Gabb; *L. translucida*, n.sp.; *Limopsis transversa*, n.sp.; *Pecten Traski*, n.sp.; *P. operculiformis*, n.sp.; *P. Californicus*, n.sp.; *Lima microtis*, n.sp.; *L. appressa*, n.sp.; *Plicatula variata*, n.sp.; *Anomia lineata*, n.sp.; *Ostrea Breweri*, n.sp.; *O. malleiformis*, n.sp.; *Gryphaea vesicularis*, Lam.; *Exogyra parasitica*, n.sp.; *Terebratella obesa*, n.sp.

ZOOPHYTA—*Flabellum Remondianum*, n.sp.; *Trochosmilia* (subgen. *Acrosmilia*); *T. striata*, n.sp.; subgen. *Ellipsosmilia? granulifera*, n.sp.; *Astrocoenia? petrosa*, n.sp.

The appendix contains descriptions of the following fossils: *Fusus mamillatus*, n.sp.; *Natica Uvasana*, n.sp.; *Scalaria Mathewsoni*, n.sp.; *Turritella infra-granulata*, n.sp.; *Solen Diegoensis*, n.sp.; *Chione? angulata*, n.sp.; *Tapes? cretacea*, n.sp.; *Crassatella Uvasana*, Conrad; *Cardita veneriformis*, n.sp.; *Barbatia Morsei*, n.sp.; *Yoldia nasuta*, n.sp.; *Placunanomia inornata*, n.sp.

Palæontology, vol. 2. Cretaceous and Tertiary fossils; by W. M. Gabb. Philadelphia, 1869. xiv and 299 pp., with 36 plates.

Section I, Part I, was issued in February, 1866; the remainder of this volume was printed in December, 1868. In the preface Prof. J. D. Whitney divides the Cretaceous as follows:

1. THE TEJON GROUP, most extensively developed in the vicinity of Fort Tejon and about Martinez; from the latter locality it forms an almost continuous belt in the coast ranges to Marsh's, 15 miles east of Mount Diablo, where it sinks under the San Joaquin plain.

2. THE MARTINEZ GROUP, found at Martinez and on the northern flank of Mount Diablo.

3. THE CHICO GROUP, an extensive member of the Pacific Coast Cretaceous; it is represented in Shasta and Butte counties and in the foothills of the Sierra Nevada as far south as Folsom, also in the coast ranges bordering Sacramento Valley at Martinez, and in Orestimba canyon, Stanislaus County.

4. THE SHASTA GROUP, a provisional name to include all below the Chico Group.

Palæontology, vol. 2. (*Continued.*)

Section I, Part I. Tertiary invertebrate fossils (pp. 1-38, pl. 1-13).

Cancer Breweri, n.sp.; *Triptera clavata*, n.sp.; *Trophon ponperosum*, n.sp.; *Neptunea recurva*, n.sp.; *Metula? Remondi*, n.sp.; *Clavella gravida*, n.sp.; *C. sinuata*, n.sp.; *Pleurotoma* (*Surcula*) *Carpenteriana*, Gabb; *P.* (*S.*) *Tryoniana*, n.sp.; *P.* (*S.*) *perversa*, Gabb; *P. Voyi*, n.sp.; *Clathurella Conradiana*, n.sp.; *Ranella Mathewsoni*, n.sp.; *Cuma biplicata*, n.sp.; *Ancillaria Fishi*, n.sp.; *Columbella* (subgen. *Alia*) *Richthofeni*, n.sp.; *Neverita callosa*, n.sp.; *Cancellaria* (subgen. *Euclia*) *tritonidea*, n.sp.; *C.* (*E.*) *vetusta*, n.sp.; *Bittium asperum*, Gabb; *Melania Taylori*, n.sp.; *Lithasia antiqua*, n.sp.; *Littorina Remondi*, n.sp.; *Turritella Hoffmanni*, n.sp.; *Trochita filosa*, n.sp.; *Pachypoma? biangulata*, n.sp.; *Turcica* (subgen. *Ptychostylis*) *coffea*, Gabb; *Calliostoma tricolor*, Gabb; *Zirphaea dentata*, n.sp.; *Pandora scapha*, n.sp.; *Hemimactra lenticularis*, n.sp.; *Mulinia? densata*, Conrad pars.; *Schizodesma abscissa*, n.sp.; *Pseudocardium*, n.gen.; *P. Gabbi*, Remond; *Gari* (subgen. *Psammocola*) *alata*, n.sp.; *Venus Kennerlyi*, Rve.? *Mercenaria perlaminosa*, Conrad; *Chione Mathewsoni*, n.sp.; *C. Whitneyi*, n.sp.; *Callista Voyi*, n.sp.; *Dosinia Staleyi*, n.sp.; *D. Conradi*, n.sp.; *Tapes? truncata*, n.sp.; *Cyrena Californica*, n.sp; *Cardium Meekianum*, n.sp.; *Conchocele*, n.gen.; *C. disjuncta*, n.sp.; *Lucina* (subgen. *Here*); *L.* (*H.*) *Richthofeni*, n.sp.; *Crassatella Collina*, Conrad; *Mytilus Mathewsoni*, n.sp.; *Modiola multiradiata*, n.sp.; *Arca sulcicosta*, n.sp.; *Yoldia Cooperi*, Gabb; *Pecten Cerrosensis*, n.sp.; *P. Veatchi*, n.sp.; *Ostrea Bourgeoisi*, Remond; *O. Attwoodi*, n.sp.; *O. Tayloriana*, n.sp.; *O. Veatchi*, n.sp.; *O. Cerrosensis*, n.sp.; *Terebratella Whitneyi*, n.sp.; *Morrisia Horni*, Gabb.

ECHINODERMATA—*Clypeaster Gabbi*, Remond; *Echinarachinus Brewerianus*, Remond; *Scutella Gibbsi*, Remond; *Astrodapsis Whitneyi*, Remond; *A. tumidus*, Remond.

ASTERIADAE—*Asterias Remondi*, n.sp.

Section I, Part II. Tertiary invertebrate fossils (pp. 39-63, pl. 14-18).

Muricidea (*? Phyllonotus*) *paucivaricata*, n.sp.; *Trophon squamulifer*, Cpr. (in lit.), n.sp.; *Neptunea allispira*, n.sp.; *N. humerosa*, n.sp.; *Agasoma*, n.gen.; *A. gravida*, Gabb; *A. sinuata*, Gabb; *Surcula Tryoniana*, Gabb; *Nasa* (subgen. *Caesia*); *Ficus pyriformis*, n.sp.; *F. nodiferus*, n.sp.; *Sinum planicostum*, n.sp.; *Cancellaria gracilior*, Cpr. (in lit.), n.sp.; *C. altispira*, n.sp.; *Trochita inornata*, n.sp.; *Acmaea rudis*, n.sp.; *Zirphaea Gabbi*, Tryon; *Siliquaria? edentula*, n.sp.; *Clidophora punctata*, Conrad; *Hemimactra? occidentalis*, n.sp.; *Pseudocardium* (remarks on the genus); *Venus pertenuis*, Gabb; *Caryatis Barbarensis*, n.sp.; *Meretrix Traski*, Conrad; *Dosinia Mathewsoni*, n.sp.; *Tapes Staleyi*, Gabb; *Saxidomus gibbosus*, n.sp.; *Yoldia nasuta*, Gabb; *Y. impressa*, Conrad; *Pecten Peckhami*, n.sp.; *P. Pedroanus*, Trask; *Ostrea Veatchi*, Gabb; *Tamiosoma gregaria*, Conrad.

Palæontology, vol. 2. (*Continued.*)

Section I, Part III, contains a synopsis of the Tertiary invertebrate fossils of California (pp. 65-124).

Section II, Part I. Cretaceous fossils, continued from vol. 1 (pp. 125-205, pl. 19-34):

CRUSTACEA—*Callianassa Stimpsoni*, Gabb.

MOLLUSCA—*Ptilotenthis*, n.gen.; *P. foliatus*, n.sp.; *Belemnites impressus*, Gabb; *Ammonites Breweri*, Gabb; *A. Traski*, Gabb; *A. Hoffmanni*, Gabb; *A. Batesi*, Trask; *A. Tehamaensis*, Gabb; *A. Suciaensis*, Meek; *A. Jugalis*, n.sp.; *A. Whitneyi*, n.sp.; *A. Stoliczkanus*, n.sp.; *A. fraternus*, n.sp.; *Turrilites Oregonensis*, Gabb; *Ancyloceras Remondi*, Gabb; *A. percostatus*, Gabb; *A.? lineatus*, n.sp.; *Helicancylus*, n.gen.; *H. aequicostatus*, Gabb; *Diptychoceras*, n.gen.; *D. laevis*, n.sp.; *Baculites occidentalis*, Meek.

GASTEROPODA—*Fusus tumidus*, n.sp.; *F. occidentalis*, n.sp.; *Neptunea* (*Tritonofusus*) *cretacea*, n.sp.; *N. mucronata*, n.sp.; *Palaea tractus*, n.gen.; *P. crassus*, n.sp.; *Eripachya*, n.gen.; *E. ponderosa*, Gabb; *E. perforata*, Gabb; *E. Hoffmanni*, Gabb; *? Neptunea gracilis*, Gabb; *Perissolax Blakei*, Conrad; *Surcula praeattenuata*, n.sp.; *S.* (*Surculites*) *sinuata*, Gabb; *S.* (*Surculites*) *inconspicus*, n.sp.; *Heteroterma*, n.gen.; *H. trochoidea*, n.sp.; *Bela clathrata*, n.sp.; *Cordiera mitraeformis*, n.sp.; *Tritonium Californicum*, n.sp.; *T.* (subgen. *Trachytriton*) *Tejonensis*, n.sp.; *T.* (*T.*) *fusiformis*, n.sp.; *Brachysphingus*, n.gen.; *B. liratus*, Gabb; *Bulla* (*Molopophorus*) *striata*, n.sp.; *Turbinella crassitesta*, n.sp.; *Mitra cretacea*, Gabb; *Ficopsis Remondi*, Gabb; *F. Horni*, Gabb; *F. Cooperi*, Gabb; *Urosyca*, n.gen.; *U. caudata*, n.sp.; *Sycodes*, n.gen.; *S. cypraeoides*, Gabb; *Euspira alveata*, Conrad; *Neverita globosa*, n.sp.; *Ampullina striata*, n.sp.; *Terebra Californica*, n.sp.; *Chemnitzia planulata*, Gabb; *Pugnellus hamulus*, Gabb; *P.* (*Gymnarus*) *manubriatus*, Gabb; *Cypraea* (*Luponia*) *Bayerquei*, Gabb; *C.* (*Epona*) *Mathewsonia*, n.sp.; *Anchura falciformis*, Gabb; *A. transversa*, n.sp.; *? A. carinifera*, n.sp.; *Helicaulax bicarinata*, n.sp.; *H. costata*, n.sp.; *Loxotrema turrita*, n.sp.; *Atresius*, n.gen.; *A. liratus*, n.sp.; *Turritella Martinezensis*, n.sp.; *Nerita* (*Theliostyla*) *triangulata*, n.sp.; *Calliostoma radiatum*, n.sp.; *Ataphrus*, n.gen.; *A. crassus*, n.sp.; *Margaritella angulata*, n.sp.; *Acmaea Tejonensis*, n.sp.; *Actaeonina pupoides*, Gabb; *Actaeonella oviformis*, n.sp.; *Liocium*, n.gen.; *L. punctatum*, n.sp.; *Ringinella polita*, n.sp.; *R. pinguis*, Gabb.

ACEPHALA—*Martesia clausa*, Gabb; *Solen* (*Hypogella*) *cuneatus*, n.sp.; *S.* (*H.*) *Diegoensis*, Gabb; *Corbula Horni*, Gabb; *C. alaeformis*, n.sp.; *Anatina quadrata*, n.sp.; *Pholadomya Oregonensis*, n.sp.; *Pleuromya papyracea*, n.sp.; *Arcomya undulata*, n.sp.; *Homomya concentrica*, Gabb; *Mactra? tenuissima*, n.sp.; *Cymbophora*, n.gen.; *C. Ashburneri*, Gabb; *Asaphis multicostata*, n.sp.; *Tellina Remondi*, Gabb; *T. Hoffmanni*, Gabb; *T. aequalis*, n.sp.; *T. undulifera*, n.sp.; *Donax latus*, n.sp.; *Venus aequilateralis*, n.sp.; *Meretrix? fragilis*, n.sp.; *M. Horni*, Gabb; *Caryatis nitida*, Gabb; *Thetis? elongata*, n.sp.; *Cardium* (*Laevicardium*) *annulatum*, Gabb;

Palæontology, vol. 2. (*Continued.*)

Section II, Part I. Cretaceous fossils.

C. (*Protocardium*) *translucidum*, n.sp.; *Cardita Horni*, Gabb; *Clisocolus*, n.gen.; *C. dubius*, Gabb; *Lucina nasuta* and *L. Posticcradiata; Crassatella grandis*, Gabb; *C. compacta*, n.sp.; *Unio Hubbardi*, n.sp.; *Mytilus quadratus*, n.sp.; *Modiola major*, n.sp.; *Meleagrina antiqua*, n.sp.; *Inoceramus Elliotti*, n.sp.; *I. Whitneyi*, n.sp.; *Aucella Piochi*, Gabb; *Pinna Breweri*, Gabb; *Trigonia aequicostata*, n.sp.; *Axinaea sagittata*, Gabb; *Nucula* (*Acila*) *truncata*, Gabb; *N. solitaria*, n.sp.; *Leda Gabbi*, Conrad; *Pecten Traski*, Gabb; *P. Martinezensis*, n.sp.; *P. complexicosta*, n.sp.; *P. interradiatus*, n.sp.; *Neithea grandicosta*, n.sp.; *Lima Shastaensis*, n.sp.; *L. multiradiata*, n.sp.; *Anomia Vancouverensis*, n.sp.; *Ostrea Idriaensis*, n.sp.; *O. appressa*, n.sp.; (*O. Idriaensis* (Gabb), White, 4th Ann. Rep. U. S. Geol. Sur., p. 291).

BRACHIOPODA—*Rynchonella Whitneyi*, Gabb.

RADIATA—*Smilotrochus? curtus*, n.sp.

Section II, Part II, contains a synopsis of the Cretaceous invertebrate fossils of California (pp. 207-254).

Section III, Part III, contains descriptions of the Cretaceous fossils from Mexico; by W. M. Gabb (pp. 255-276, pl. 35-36).

Geology, vol. 1. Report of progress and synopsis of the field-work from 1860 to 1864. Philadelphia, 1865. xxxii and 498 pp., and plate.

Part I of this report contains: Geology of the Coast Ranges, Contra Costa hills, Monte Diablo group, Mount Hamilton group, Monte Diablo group, south of Pacheco's Pass; the Peninsula of San Francisco; the coast ranges north of the Bay of San Francisco; the coast ranges south of the Bay of Monterey; the coast ranges from the vicinity of Los Angeles south; the region between the Canada de las Uvas and Soledad Pass.

Part II. The geology of the Sierra Nevada; the undisturbed marine sedimentary rocks along the foothills of the Sierra; the mining regions of California, embracing the great auriferous belt along the western slope of the Sierra Nevada; the high Sierra region about the head of Kern, Kings, San Joaquin, Merced, Tuolumne, and Mokelumne rivers; the eastern slope—Mono Lake and its vicinity, Owen's Valley, the Great Basin, etc.

Appendix A. Tabular statement of the operations of the principal quartz mills; by W. Ashburner.

Appendix B. Description of fossils from the auriferous slates of California; by F. B. Meek.

The following fossils are described and illustrated in this report: *Amussium aurarium*, Meek; *Aucella Erringtoni*, Gabb; *A. Erringtoni* var. *linguliformis; Pholadomya? orbiculata*, Gabb; and *Belemnites Pacificus*, Gabb.

Ornithology, vol. 1. Land-birds; edited by S. F. Baird from the manuscript and notes of J. G. Cooper. Cambridge, 1870. xi and 592 pp.

Map of region adjacent to the Bay of San Francisco. Scale, 2 miles to 1 inch. New York, 1873.

Map of California and Nevada. 1873. State Geological Survey of California; J. D. Whitney, State Geologist. Drawn by F. von Leicht and A. Craven. Scale, 18 miles to 1 inch.

Same, 2d edition. Revised by Hoffmann & Crane, and issued by authority of the Regents of the University of California, May 12, 1874. Same scale.

Same, 3d edition. Published by W. D. Walkup & Co. San Francisco, 1878. Same scale.

A new edition by W. D. Walkup & Co. 1887.

The following volumes and memoirs are to be credited to the Geological Survey of California, J. D. Whitney, Director, as a continuation, in part, of the work stopped by the Legislature in 1874; permission having been given to the late State Geologist, by the Board of Regents of the University of California, in whose hands the matter was left, to continue the publications:

Contributions to barometric hypsometry, with tables for use in California. Cambridge, 1874. 88 pp. (Supplementary chapter added in 1878; pp. 89-112.)

Supplementary chapter, and practical application of the tables to the observations of the year 1870-71, and a discussion of the results obtained; by J. D. Whitney. Cambridge, 1878. 24 pp.

Botany, vol. 1. Polypetalæ; by W. H. Brewer and Sereno Watson. Gamopetalæ; by Asa Gray. Cambridge, 1876. xx and 628 pp.

Botany, vol. 2; by Sereno Watson. Cambridge, 1880. xv and 559 pp.

Geology, vol. 2. The Coast Ranges. Appendix. Cambridge, 1882. 148 pp. 5 plates. (Uniform with publications of the Geological Survey of California, J. D. Whitney, State Geologist.)

This report contains—

A. Detailed description of the Monte Diablo coal fields; by W. A. Goodyear. April, 1870.

B. Additional notes on the Monte Diablo coal mines; by W. A. Goodyear. June, 1873.

C. Statistics of the Monte Diablo coal mines; by W. A. Goodyear. January, 1874.

D. Notes descriptive of the condition of the Corral Hollow coal mines; by W. A. Goodyear. August, 1870.

E. Chemical examination of the Pacific coals; by S. F. Peckham. I, July, 1872; II, September, 1872.

F. Examination of the bituminous substances in southern California; by S. F. Peckham. Part I, Geological and historical (June, 1866). Part II, Chemical investigations: Section 1, February, 1867; Section 2, January, 1871.

G. Report on an examination of the quicksilver mines of California; by W. A. Goodyear. May, 1871.

H. Notes on the geology of Lower California; by W. M. Gabb.

The water-birds of North America; by S. F. Baird, T. M. Brewer, and R. Ridgeway. Issued in continuation of the publications of the Geological Survey of California. Boston, 1884. Vol. 1, xi and 537 pp.; vol. 2, 552 pp.

Report on the fossil plants of the auriferous gravel deposits of the Sierra Nevada; by Leo Lesquereux. Cambridge, 1878. viii and 62 pp., with 10 double plates. Memoirs of the Museum of Comparative Zoology, vol. 6, no. 2.

This report contains descriptions of the following fossil plants: *Acer aequidentatum*, n.sp.; *A. Bolanderi*, n.sp.; *Aralia angustiloba*, n.sp.; *A. Whitneyi*, n.sp.; *A. Zaddachi?* Heer; *Betula aequalis*, n.sp.; *Cercocarpus antiquus*, n.sp.; *Castaneopsis chrysophylloides*, n.sp.; *Cornus Kelloggi*, n.sp.; *C. ovalis*, n.sp.; *Fagus antipofi*, n.sp.; *F. pseudo-ferruginea*, n.sp.; *Ficus microphylla*, n.sp.; *F. sordida*, n.sp.; *F. tiliaefolia*, Al. Br.; *Ilex prunifolia*, n.sp.; *Juglans Californica*, n.sp.; *J. Oregoniana*, n.sp.; *J. laurinea*, n.sp.; *Liquidambar Californicum*, n.sp.; *Magnolia Californica*, n.sp.; *M. lanceolata*, n.sp.; *Platanus appendiculata*, n.sp.; *P. dissecta*, n.sp.; *Populus Zaddachi*, Heer; *Persea pseudo-carolinensis*, n.sp.; *Quercus Boweniana*, n.sp.; *Q. chrysophylloides*, n.sp.; *Q. convexa*, n.sp.; *Q. distincta*, n.sp.; *Q. claenoides*, n.sp.; *Q. Goepperti*, n.sp.; *Q. Nevadensis*, n.sp.; *Q. pseudo-lyrata*, n.sp.; *Q. Voyana*, n.sp.; *Rhus Boweniana*, n.sp.; *R. dispersa*, n.sp.; *R. metopioides*, n.sp.; *R. mixta*, n.sp.; *R. myricaefolia*, n.sp.; *R. typhinoides*, n.sp.; *Sabalites Californicus*, n.sp.; *Salix Californica*, n.sp.; *S. elliptica*, n.sp.; *Ulmus affinis*, n.sp.; *U. Californica*, n.sp.; *U. pseudo-fulva*, n.sp.; *Zanthoxylon diversifolium*, n.sp; *Zizyphus microphyllus*, n.sp.; *Z. piperoides*, n.sp.

The auriferous gravels of the Sierra Nevada of California; by J. D. Whitney. Cambridge, 1879-80, pp. 1-288; 1880, pp. 289-569. 24 plates and 2 geological maps. Memoirs of the Museum of Comparative Zoology, vol. 6.

The climatic changes of later geological times. A discussion based on observations made in the Cordilleras of North America; by J. D. Whitney. Cambridge, 1880-82. 394 pp. Memoirs of the Museum of Comparative Zoology, vol. 7.

Contributions to American Geology, vol. 1; by J. D. Whitney. Cambridge, 1880.

This is the same as the auriferous gravels.

Contributions to American Geology, vol. 2.

This volume contains Lesquereux's Fossil plants of the auriferous gravels, and Whitney's Climatic changes of later geological times.

SURVEYOR-GENERAL'S REPORTS.

Geology of a part of Calaveras County. December, 1854. By William Patton. In report to the Surveyor-General of California; Document No. 5, Appendix F, pp. 86-88. Sacramento, 1855.

The tract noticed embraces an extent of the county between the Mokelumne River and Middle Fork, and the Stanislaus and North Fork, longitudinally; and latitudinally, the space between the foothills and the headwaters of the San Antonio branch of the Calaveras.

Report of a survey of a portion of the eastern boundary of California, and a reconnoissance of the old Carson and Johnson immigrant roads over the Sierra Nevada. In Annual Report of the Surveyor-General, 1856; Assembly Doc. No. 5, Session of 1856, pp. 91-186.

This report, by George H. Goddard, contains a few geological notes on rocks along the route.

CALIFORNIA STATE MINING BUREAU.

HENRY G. HANKS, State Mineralogist.

First Annual Report of the State Mineralogist, from June 1, 1880, to December 1, 1880. Sacramento, 1880. 43 pp.

This report contains analysis of clay from a deposit at Lincoln, Placer County.

Second Report of the State Mineralogist, from December 1, 1880, to October 1, 1882. Sacramento, 1882. 288 pp., map of mud volcanoes and 4 photographs, with appendix. (The index to this report was published separately.)

The report contains articles on placer, hydraulic, and drift mining; general geology; iron ores and iron industries of California; lumber and fuel; the occurrence of salt in California, and its manufacture; mud volcanoes; the Colorado Desert; diamonds in California; notes on mica; diatoms and diatomaceous earths; contributions to ethnology and geology of the Pacific Slope, by Philip Harvey.

The appendix contains the following papers: 1. Forest trees of California, by A. Kellogg (this paper was also issued by the State Mining Bureau in separate covers, pp. 1-148; Sacramento, 1882); 2. Notes on hydraulic mining, by F. W. Robinson; 3. Hydraulic and drift mining, by H. Degroot; 4. On the milling of gold quartz, by M. Attwood; 5. Rare minerals recently found in the State, by William P. Blake.

Contributions to the geology and mineralogy of California; by William P. Blake. Sacramento, 1881. 15 pp.

This report contains a description of new mineral localities.
No. 2. Section from Merced to Coulterville and Big Oak Flat.
No. 3. Coulterville to Chinese Camp.
No. 4. Chinese Camp to Sonora.
No. 5. Occurrence of vanadates of lead at the Castle Dome mines.

Contributions to the geology and mineralogy of California: On the milling of gold quartz; by Melville Attwood. Sacramento, 1882. 20 pp.

Read before the California State Geological Society, and published in part by the Mining and Scientific Press, August 20, 1881.

First annual catalogue of the State Museum of California, being the collection made by the State Mining Bureau during the year ending April 16, 1881. Sacramento, 1882. 350 pp.

This is a catalogue of the specimens classified, labeled, and displayed in the Museum cases.

Third Annual Report of the State Mineralogist, for the year ending June, 1883. Sacramento, 1883. 111 pp. and sketch-map of California and Nevada, showing the locality of the principal borax fields.

Part II contains a report on the borax deposits of California and Nevada, by Henry G. Hanks.

Fourth Annual Report of the State Mineralogist, for the year ending May 15, 1884. Sacramento, 1884. 410 pp. and 2 pl.

This volume contains a history of the Geological Survey of the State; also a general account of the agricultural, commercial, manufacturing, and other resources, interests, and industries of California, by Henry Degroot. pp. 29-59.

Also, a catalogue and description of the minerals of California as far as known, with special reference to those having an economic value. Alphabetically arranged. pp. 60-398.

Fifth Annual Report of the State Mineralogist, for the year ending May 15, 1885. Sacramento, 1885. 235 pp., 1 pl., and 4 sections.

This report gives an account of the State Mining Bureau's exhibit at the New Orleans Exposition.

Sixth Annual Report of the State Mineralogist, for the year ending June 1, 1886. Part I. Sacramento, 1886. 145 pp. and sketch-map of San Diego County.

This report contains an article on building-stones and building-materials in California; table of altitudes; record of strata in artesian well, Kern County; mineral springs in California; Calistoga silver mines; a general account of San Diego County, with map of Julian District. The report closes with a list of California minerals.

Catalogue of books, maps, lithographs, photographs, etc., in the library of the State Mining Bureau at San Francisco, May 15, 1884. Sacramento, 1884. 19 pp.

Catalogue of the State Museum of California, vol. 2, being the collection made by the State Mining Bureau from April 16, 1881, to May 5, 1884. Sacramento, 1885. 220 pp.

WILLIAM IRELAN, Jr., State Mineralogist.

Sixth Annual Report of the State Mineralogist, for the year ending June 1, 1886. Part II. Sacramento, 1887. 222 pp. Illustrated.

Contains reports on the mines of Amador, Butte, Calaveras, El Dorado, Fresno, Nevada, Sierra, and Tuolumne counties.

Catalogue of the State Museum of California, vol. 3, being the collection made by the State Mining Bureau from May 15, 1884, to March 31, 1887. Sacramento, 1887. 195 pp.

Seventh Annual Report of the State Mineralogist, for the year ending October 1, 1887. Sacramento, 1888. 315 pp.

This report contains an article on petroleum, asphaltum, and natural gas of California, by W. A. Goodyear; also, a report on coal, with reports on natural gas and coal in California, by A. H. Weber; petroleum and asphaltum in portions of northern California, by A. H. Weber; building-stones of California, by Prof. A. Wendell Jackson; production of precious metals, report of Wells, Fargo & Co.; with a catalogue of fossils, by J. G. Cooper. pp. 223-308. This catalogue forms Part I. The other parts (II, III, IV and V) were published in Bulletin No. 4, State Mining Bureau, 1894.

Eighth Annual Report of the State Mineralogist, for the year ending October 1, 1888. Sacramento, 1888. 948 pp. Illustrated.

This report contains the mineral resources of the State, considered by counties, with reports on natural and artificial cement, building-stones, etc.; reports on Inyo, Kern, Lake, Lassen, Marin, Mariposa, Mendocino, Merced, Modoc, Monterey, Nevada, Placer, Plumas, San Benito, San Francisco, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Solano, Sonora, Stanislaus, Sutter, Tehama, Trinity, Tuolumne, Los Angeles, San Bernardino, San Diego, and Tulare counties, by W. A. Goodyear; Mono County, by H. A. Whiting; Ventura County, by S. Bowers; drift mining in California, by R. L. Dunn; lithology of wall rocks, by M. Attwood.

Bulletin No. 1. A description of the desiccated human remains in the California State Mining Bureau; by Winslow Anderson, M. D. Sacramento, 1888. 41 pp. and 6 pl.

Ninth Annual Report of the State Mineralogist, for the year ending December 1, 1889. Sacramento, 1890. 352 pp. and 34 pl.

This report contains an article on Santa Clara County, by A. H. Weber; The geology of San Nicolas Island, by Dr. Stephen Bowers; The auriferous gravels of California, geology of their occurrence and methods of their exploitation, by John Hays Hammond; San Diego County, by W. A. Goodyear; Santa Cruz Island, by W. A. Goodyear; Stray notes on the geology of the channel islands, by Dr. L. G. Yates; The mollusca of the channel islands of California, by Dr. L. G. Yates; Reports on Los Angeles County, by E. B. Preston, and San Bernardino County, by James H. Crossman; The value of fossils as indications of important mineral products, by Dr. J. G. Cooper; Report on clays, by W. D. Johnston; etc.

Tenth Annual Report of the State Mineralogist, for the year ending December 1, 1890. Sacramento, 1890. 981 pp., maps and plates.

This report contains a geological map of the State, with the following special reports relating to geology, viz.:

Geology of the Mother Lode region; by H. W. Fairbanks.

Geological features of Placer County. pp. 414-418.

Geology of Nevada County. p. 368.

Geology of the Colorado Desert; by C. R. Orcutt. pp. 899-919.

Geology of Trinity County. p. 695.

Geology of Orange County. pp. 399-409.

Fossils of the Carboniferous period. p. 917.

Fossils of Orange County. pp. 407-408.

Fossils of Ventura County. p. 762.

List of Cretaceous fossils in Santa Ana Mountains, Orange County. p. 400.

Mining of gold ores in California; by J. H. Hammond. pp. 852-882.

Gold extraction by potassium cyanide; by Wm. D. Johnston. pp. 938-942. The State Mining Bureau in this report was among the first in the United States to investigate the merits of the cyanide process.

With other reports containing geological information.

Catalogue of the State Museum of California, vol. 4, being the collection made by the State Mining Bureau from March 31, 1887, to August 20, 1890. Sacramento, 1890. 261 pp.

Catalogue of the Library of the California State Mining Bureau, San Francisco, September 1, 1892. Sacramento, 1892. 149 pp.

Eleventh Report (First Biennial) of the State Mineralogist, for the two years ending September 15, 1892. Sacramento, 1893. 612 pp.

This report contains the following special articles on geology, viz.: Geology and mineralogy of Shasta County; by H. W. Fairbanks. pp. 24-53.

Notes on the geology and mineralogy of portions of Tehama, Colusa, Lake, and Napa counties; by H. W. Fairbanks. pp. 54-75.

Geology of San Diego County, also of portions of Orange and San Bernardino counties; by H. W. Fairbanks. pp. 76-120.

Geology of Calico District, San Bernardino County. pp. 337, 338, 339, 340, 343.

Geology of the Lava Bed District, San Bernardino County. pp. 349 and 350.

Geology in the region of Mineral Spring, Siskiyou County. pp. 451, 452; etc., etc.

J. J. CRAWFORD, State Mineralogist.

Twelfth Report (Second Biennial) of the State Mineralogist, for the two years ending September 15, 1894. Sacramento, 1894. 541 pp. Maps and illustrations.

This report contains: The auriferous conglomerate in California, by R. L. Dunn; Preliminary report on the mineral deposits of Inyo, Mono, and Alpine counties, by H. W. Fairbanks; Ancient channel system of Calaveras County, by W. H. Storms; Geology of northern Ventura, Santa Barbara, San Luis Obispo, Monterey, and San Benito counties, by H. W. Fairbanks.

Bulletin No. 2. San Francisco, June, 1894. Methods of mine-timbering; by W. H. Storms. Sacramento, 1894. 58 pp., with illustrations. (A second edition was issued in 1896.)

Bulletin No. 3. San Francisco, August, 1894. The gas and petroleum yielding formations of the Central Valley of California; by W. L. Watts. Sacramento, 1894. 100 pp. Maps and illustrations.

Bulletin No. 4. San Francisco, September, 1894. Catalogue of California fossils, Parts II, III, IV, and V; by Dr. J. G. Cooper. Sacramento, 1894. 6 pl. (Part I was published in the Seventh Annual Report of the State Mineralogist for 1887.)

This is a supplement to the volume on Palæontology, published by J. D. Whitney, and to Part I, catalogue of California fossils,

Bulletin No. 4. (*Continued.*)

published in the Seventh Annual Report of the State Mineralogist, 1887. The following new species are described and figured:

CRETACEOUS AND EOCENE FOSSILS—*Terebra Wattsiana, Surcula crenatospira, S. monilifera, S. inconstans, Pleurotoma Perkinsiana, P. decipiens, Drillia ullreyana, Mangilia suturalis, Cordiera gracillima, Cancellaria Irelaniana, Ancilla (Oliverato) Californica, Bittium longissimum, Cerithium Fairbanksi, Potamides carbonicola, P. Davisiana, Fusus supraplanus, Mitra simplicissima, Stomatia intermedia, Calliostoma Kempiana, Tornatella normalis, Bulla assimilata, Tornatina erratica, Siphonaria capuloides, Astarte semidentata, Crassatella lomana, Cucullaea Bowersiana, Corbula triangulata, Mytilus dichotomus, Crenella Santana, Megerlia dubitanda, Waldheimia imbricata.*

TERTIARY-MIOCENE AND PLIOCENE—*Agasoma Barkerianum, Trophosycon* (n.subgen.), *Agasoma? (Trophosycon) Kernianum.*

FRESH-WATER FOSSILS—*Limnea Contracosta; Planorbis Pabloanus; Anodonta (Nuttalliana) lignitica; Amnicola Yatesiana; Pinna Alamedensis*, Yates; *P. Venturensis*, Yates; *Pecten discus*, Conrad; *Liropecten estrellanus*, Conrad.

Bibliography of Fossil Mollusca, pp. 6-22.

Bulletin No. 5. San Francisco, October, 1894. The cyanide process, its practical application and economical results; by Dr. A. Scheidel. Sacramento, 1894. 140 pp.

Catalogue of West North American and many foreign shells, with their geographical ranges. For labels, exchange, and check-lists, with a supplement; by J. G. Cooper. Printed for the State Mining Bureau, April, 1894. Sacramento, 1894.

Bulletin No. 6. California gold mill practices; by Ed. B. Preston. Sacramento, 1895. 85 pp.

Bulletin No. 7. Showing, by counties, the mineral productions of California for the year 1894; by Charles G. Yale. Sacramento, 1895. Tabular sheet.

Bulletin No. 8. Showing, by counties, the mineral productions of California for the year 1895; by Charles G. Yale. Sacramento, 1896. Tabular sheet.

Bulletin No. 9. Mine drainage, pumps, etc.; by Hans C. Behr. Sacramento, 1896. 200 pp. 206 illustrations.

Thirteenth Report (Third Biennial) of the State Mineralogist, for the two years ending September 15, 1896. Sacramento, 1896. 725 pp. Maps and illustrations.

This report contains articles on antimony, argentiferous galena, asphalt and bituminous rocks, borax, chromic iron, coal, copper, gold, gypsum, magnesite, manganese, and mineral springs of the several counties; also articles on the mining and irrigating ditches, artesian wells, etc., natural gas, petroleum, quicksilver, structural materials, miscellaneous, etc.

The Appendix contains articles as follows: Preservation of structural timber, by John D. Isaacs; Petroleum, its origin in California, etc., by F. Salathe; Oil as fuel in Los Angeles, by W. L. Watts; Reference to the Mother Lode, by Harold W. Fairbanks; Electric power transmission plants in California, by W. F. C. Hasson; etc.

Bulletin No. 10. San Francisco, September, 1896. A bibliography relating to the geology, palæontology, and mineral resources of California; by Anthony W. Vogdes. Sacramento, 1896. 121 pp.

The author gives a brief synopsis of the geological contents of each work mentioned, and a catalogue of the fossils. The book contains also a republication of the first article on the geology of California, that of San Francisco Bay, published in Beechey's Narrative of a Voyage to the Pacific and Behring Strait in 1831.

Bulletin No. 11. San Francisco, December, 1896. Oil and gas yielding formations of Los Angeles, Ventura, and Santa Barbara counties, Part I; by W. L. Watts. Sacramento, 1897. 94 pp., 5 maps, and 31 illustrations.

This bulletin contains: Parts I and II, a geological list of wells, production, etc., of Los Angeles and Ventura counties. Part III, geological formation and petroleum industry in portions of Ventura and Santa Barbara counties. Part IV, miscellaneous drilling machinery, oil as fuel, etc. Sketch-maps of Los Angeles and vicinity, Puente oil district, Ventura County oil district, Summerland, Santa Barbara County, etc.

A. S. COOPER, State Mineralogist.

Bulletin No. 12. Showing by counties the mineral productions of California for the year 1896; by Charles G. Yale. Sacramento, 1897. One large sheet.

Bulletin No. 13. Showing by counties the mineral productions of California for the year 1897; by Charles G. Yale. Sacramento, 1898. One large sheet.

Bulletin No. 14. Showing by counties the mineral productions of California for the year 1898; by Charles G. Yale. Sacramento, 1899. One large sheet.

Bulletin No. 15. Map of Oil City oil fields, Fresno County, California.

Bulletin No. 16. San Francisco, December, 1899. The genesis of petroleum and asphaltum in California; by A. S. Cooper, State Mineralogist. Sacramento, 1899. 89 pp.

Bulletin No. 17. Showing by counties the mineral productions of California for the year 1899; by Charles G. Yale. Sacramento, 1900. One large sheet.

Bulletin No. 18. San Francisco, October, 1900. The Mother Lode region of California; by W. H. Storms. Sacramento, 1900. 154 pp. Illustrated.

The bulletin contains: General geology of the gold belt; Methods of mining; The cost of mining; Mining machinery; Descriptions of mines of Amador, El Dorado, Calaveras, Tuolumne, Mariposa, and Madera counties.

Bulletin No. 19. San Francisco, November, 1900. Oil and gas yielding formations of California; by W. L. Watts. Sacramento, 1900. 236 pp. Illustrated. Geological relief map of the Puente Hills; scale, 2 miles to 1 inch.

The paper contains articles on the value of the petroleum industry in California; Geology of the Puente Hills; The foothills east of the Santa Ana River; Geological formation between Puente Hills and Los Angeles oil-fields; The Los Angeles oil-field, 1897-1900; San Pedro peninsula, Los Angeles County; The San Fernando or Newhall mining district; Territory between Newport in Orange County and the San Diego County line; Prospect wells in San Diego County; Productive wells in Los Angeles County; Prospect and unfinished wells in Los Angeles and Orange counties; The territory between Sespe and Piru creeks; Eocene formations on Sespe Creek; Productive wells in Santa Barbara; Productive wells in Ventura County; Summerland oil-fields; Geological sketch of the San Joaquin Valley; Petroleum in Kern County; Kern River oil district; The Sunset oil district; Wells in Sunset oil district; The McKittrick district; Devil's Den district; Kreyenhagen district; Coalinga district; Geological description of Monterey County, by H. W. Fairbanks; The oil-yielding formations of San Luis Obispo County; San Benito County; Alameda, Santa Clara, San Mateo, and Contra Costa counties; Mendocino, Colusa, Humboldt, and Napa counties; Pipe-lines and refineries.

Bulletin No. 19. (*Continued.*)

Part XII is a summary of the oil-yielding formations, character of California petroleum, and historic sketch of oil mining. It contains chapters on the geographical and geological range of oil-yielding formations in California; Neocene and more recent formations in Orange and Los Angeles counties; Geological structure pertaining to the occurrence of petroleum; Fuel value, etc.

Appended are tables of fossils and an atlas of geological sketch-maps.

Report of the Board of Trustees for the four years ending September, 1900. Sacramento, 1901. 15 pp.

Bulletin No. 20. Synopsis of general report of the California State Mining Bureau; by W. L. Watts. Sacramento, 1901. 21 pp.

A compendium of the mining industry of the State of California for the four years ending December, 1899.

LEWIS E. AUBURY, State Mineralogist.

Bulletin No. 21. Showing by counties the mineral productions of California for the year 1900; by Charles G. Yale. Sacramento, 1901. One large sheet.

Bulletin No. 22. Showing the mineral productions of California for fourteen years, 1887-1900; by Charles G. Yale. Sacramento, 1901. One large sheet.

Reconnoissance of the Colorado Desert mining district; by Stephen Bowers. Sacramento, 1901. 19 pp.

Bulletin No. 23. The copper resources of California; by Lewis E. Aubury, State Mineralogist. Sacramento, 1902. 282 pp., 8 maps. Illustrated.

The history of copper mining in California extends to an early date. Old records of 1840 mention the existence of copper in Soledad canyon, Los Angeles County, and in 1854 deposits of the mineral were discovered by a Frenchman named Maris, which were subsequently worked.

A small deposit of rich copper ore was discovered in Hope Valley, Alpine County, in 1855.

State Geologist Dr. J. B. Trask discovered copper ore in nearly every county in the State during his term of office, extending from 1851 to 1854, but his discoveries received no attention. In fact, the first practical step toward the development of the copper

Bulletin No. 23. (*Continued.*)

resources of the State was by Hiram Hughes, the discoverer of the Napoleon mine, in Calaveras County, although the presence was known in 1859 or earlier of rich deposits on the Pit and McCloud rivers, and copper ore yielding 70 per cent of the pure metal was extracted from a vein in El Dorado County.

They made no impression favorable to California as a copper-producing field. Hiram Hughes's discovery in 1860 had, however, a marked effect upon mining development. Hughes found that the gossan cap of what became Quail Hill No. 1 mine was rich in gold, and he began working it for that metal. Soon after he found the gossan of what later became known as the Napoleon mine, but finding no gold in it he sent ore to San Francisco to be assayed. The report showed that it contained 30 per cent copper worth $120 per ton. This report started a copper excitement in that locality. Soon afterward the Copperopolis lode was found a few miles west of the Napoleon.

During that era of activity in California copper mining, Calaveras County was the chief scene of operations. Thousands of tons of rich copper ores were shipped abroad to be smelted. The greatest depth reached was in the Union mine, the lower levels being 600 feet below the outcroppings. But the ore degenerated with depth, and prices in the copper market falling caused the final suspension of operations in 1868.

According to Professor Thomas Price, Del Norte County ranked second to Calaveras in the production of copper ore during the period extending from 1862 to 1865. The copper belt in that county extends north and south for a distance of ten miles.

Some high-grade carbonates and oxides were also shipped then from the Zinc House mine, near Empire Ranch, Nevada County, and small quantities from Colusa County.

In 1862, copper was discovered and mined at Copper City, Shasta County; but it carried only 8 per cent copper. Subsequent assays showed that it carried $40 per ton in gold and $20 in silver, and it was shipped to Swansea to be smelted. This is the vein on which the Bully Hill mines are now located. As all California copper deposits carry silver and gold and other by-products they are all the more valuable to mine.

Colusa, Plumas, Mariposa, Fresno, and Santa Cruz counties shipped some copper to market in the sixties. Prospects obtained in Mariposa and Fresno counties indicated that Tuolumne, Mariposa, Madera, Stanislaus, Fresno, and Tulare counties would become large producers of copper.

The first smelting works was a small reverberatory furnace of 10 tons per day capacity at Antioch, Contra Costa County, in 1863. The lignite produced at the Mount Diablo mines was used as fuel.

From 1868 until 1895, the copper industry of California was practically dead. In the latter year, the new era of activity set in with the purchase and opening of the mines of the Mountain Copper Company of Shasta.

From 1860 to 1874 inclusive the total copper exports amounted to 96,674 tons, valued at $7,439,080. From 1895 to 1900 inclusive the total value of the Shasta copper output amounted to

Bulletin No. 23. (*Continued.*)

$11,917,762. To this may be added, say, $5,000,000 for last year and we have a grand total of $17,000,000 in round numbers to the credit of six years' operations in one county.

The following statement shows the product of each copper-yielding county in the year 1900:

	Pounds.	Value.
Amador	220,000	$ 34,100
Calaveras	980,934	150,585
El Dorado	3,125	500
Kern	4,000	750
Madera	500,000	77,500
Nevada	150,980	20,472
San Bernardino	1,920,000	297,600
Shasta	25,736,473	4,166,735
Totals	29,515,512	$4,748,242

In 1901 the field of operations was extended and the following counties ranked as copper producers:

	Pounds.	Value.
Alameda	13,728	$ 2,162
Alpine	8,377	1,319
Amador	52,000	8,190
Calaveras	1,701,589	268,000
Fresno	1,159,672	182,648
Inyo	8,566	1,349
Kern	429,248	67,606
Madera	108,430	17,077
Mariposa	191,622	30,180
Merced	79,071	12,453
Mono	1,938	305
Nevada	39,588	6,235
Placer	11,200	1,764
Sacramento	2,007	316
San Bernardino	50,000	7,875
Shasta	30,990,781	4,881,048
Stanislaus	79,330	12,494
Trinity	4,838	761
Totals	34,931,985	$5,501,782

A study of the map which Mr. Aubury includes shows a continuous belt in the Sierra foothill country following a well-defined course from the southern border of Butte County to Riverside—a distance of about 400 miles. A northern extension of this belt diverts somewhat to the northeast and traverses Sierra, Plumas, and Lassen counties. Then an outer copper belt extends in an almost continuous line from San Francisco Bay to the Oregon boundary line in Del Norte County.

The three principal mineral products of California last year were gold, copper, and petroleum.

Bulletin No. 24. The saline deposits of California; by G. E. Bailey. Sacramento, 1902. 216 pp., with maps. Illustrated.

Bulletin No. 25. Showing the mineral productions of California for 1901; by Charles G. Yale. Sacramento, 1902. One large sheet.

Bulletin No. 26. Mineral production of California for the past fifteen years; by Charles G. Yale. Sacramento, 1902. One large sheet.

Gold production of California from 1848 to 1902; by Charles G. Yale. Sacramento, 1902. Tabular sheet.

Bulletin No. 27. The quicksilver resources of California. Issued by State Mining Bureau, under direction of Lewis E. Aubury, State Mineralogist. Sacramento, 1903. 273 pp., with maps and illustrations.

This bulletin includes chapters on condition of the quicksilver mining industry; Geology of the quicksilver belt in California; Ore deposits; Genesis of quicksilver ore deposits; Cost of mining and reduction; Description of districts north of San Francisco; Quicksilver mines in the different counties of California; Metallurgy of quicksilver; List of elevations. There are 94 illustrations, 44 photographs, 8 folder maps, and a number of smaller maps of mines and districts.

Bulletin No. 28. Showing mineral productions of California for 1902. Sacramento, 1903. One large sheet.

Bulletin No. 29. Mineral productions of California for past sixteen years; by Charles G. Yale. Sacramento, 1903. One large sheet.

Gold production of California, 1848 to 1903; by Charles G. Yale. Sacramento, 1903. Tabular sheet.

Bulletin No. 30. Bibliography relating to the geology, palæontology, and mineral resources of California, including a list of maps; by Anthony W. Vogdes, Artillery Corps, U. S. A. Issued by the State Mining Bureau. Sacramento, 1904.

The following maps have been issued by the State Mining Bureau:

Map of the Mother Lode.

Register of mines and minerals, with map, of Plumas County. Scale of map, 2 miles to 1 inch. Data collected October, 1898, under direction of A. S. Cooper, State Mineralogist.

Register of mines and minerals, with map, of Calaveras County. Scale of map, 2 miles to 1 inch. Data collected April, 1899, under direction of A. S. Cooper, State Mineralogist.

Register of mines and minerals, with map, of Siskiyou County. Scale of map, 2 miles to 1 inch. Data collected February, 1898, under direction of A. S. Cooper, State Mineralogist.

Register of mines and minerals, with map, of Trinity County. Scale of map, 2 miles to 1 inch. Data collected October, 1898, under direction of A. S. Cooper, State Mineralogist.

Register of mines and minerals, with map, of Nevada County. Scale of map, 2 miles to 1 inch. Under direction of A. S. Cooper, State Mineralogist.

Register of mines and minerals, with map, of Lake County. Scale of map, 2 miles to 1 inch. Data collected November, 1901, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of Placer County. Scale of map, 2 miles to 1 inch. Data collected February, 1902, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of El Dorado County. Scale of map, 2 miles to 1 inch. Data collected April, 1902, under direction of Lewis E. Aubury, State Mineralogist. Contains economic geological map of El Dorado County.

Register of mines and minerals, with map, of Shasta County. Scale of map, 2 miles to 1 inch. Data collected March, 1902, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of San Bernardino County. Scale of map, 2 miles to 1 inch. Data collected August, 1902, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of San Diego County. Scale of map, 2 miles to 1 inch. Data collected September, 1902, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of Tuolumne County. Scale of map, 2 miles to 1 inch. Data collected June, 1903, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of Sierra County. Scale of map, 2 miles to 1 inch. Data collected June, 1903, under direction of Lewis E. Aubury, State Mineralogist.

Register of oil wells, Los Angeles city; with map of Los Angeles city oil field. Data collected April, 1903, under direction of Lewis E. Aubury, State Mineralogist.

Register of mines and minerals, with map, of Amador County. Scale of map, 2 miles to 1 inch. Data collected August, 1903, under direction of Lewis E. Aubury, State Mineralogist.

In preparation: Registers of mines and minerals, with maps, of Butte, Kern, and Mariposa counties.

CALIFORNIA SENATE AND ASSEMBLY DOCUMENTS.

California Senate and Assembly Journal, 15th Session.

Transactions California State Agricultural Society during the year 1863. Gives a list of gold mines. pp. 101-118.

Mining Review for 1863. Contains an article on placer gold mining; also a notice of silver mining, of quartz gold and silver mining, and of copper, coal, iron, petroleum and asphaltum, quicksilver mines, etc. pp. 176-193.

California Senate and Assembly Journal, 16th Session, 1866. Vol. 3, pp. 314-356.

Gives an account of California marble, p. 314.

Mining Review for 1865. Gives the extent of the mining field, variety of ore, mineral products, placer and surface diggings, quartz mining, silver mines, coal, quicksilver, petroleum, etc. pp. 315-334.

Annotated catalogue of the principal mineral species hitherto recognized in California and adjoining States and Territories; by W. P. Blake. March, 1866. pp. 335-356.

Notes on the geographical distribution and geology of the precious metals and valuable minerals of the Pacific Slope. pp. 359-364. [Prof. W. P. Blake was appointed the Geologist of the State Board of Agriculture in 1866, and made a report on the minerals of California under the above title. The report was also published in pamphlet form, with the same title. Reviewed Amer. Jour. Sci., vol. 42, 1866, pp. 114-118.]

The same volume also contains a report of Assembly Committee on Mines and Mining Interests, concerning the State Geological Survey; also, the Report of the State Geologist for 1863-64.

California Senate and Assembly Journal, 17th Session. No. 3.

Gold, silver, platinum, and rare metals. Sacramento, 1867.

UNIVERSITY OF CALIFORNIA.

Report on Mount Diablo coals; by S. B. Christy. In reports to the President of the University, from the Colleges of Agriculture and the Mechanic Arts, pp. 70-74. Sacramento, 1877.

Report on the genesis of cinnabar deposits; by S. B. Christy. Berkeley, 1878.

Report of Professor J. D. Whitney to the honorable the Board of Regents of the University of California. In biennial report of the Regents of the University of California for the years 1877-79, pp. 82-85. Sacramento, 1879.

List of recorded earthquakes in California, Lower California, Oregon, and Washington Territory. Compiled from published works and from private information, by Edward S. Holden. Printed by direction of the Regents of the University of California. Sacramento, 1887. 78 pp.

List of printed maps of California; by J. C. Rowell. Univ. of Cal., Library Bull. No. 9. Berkeley, 1887.

Bulletin of the building-stones of California; by A. Wendell Jackson. California University, Berkeley, 1888. Supplement to Secretary's report.

This paper gives notes and microscopic examinations of Santa Susanna sandstones, Henley sandstones, Campo Seco tufa, Colton marbles, etc.

The geology of Carmelo Bay, by Andrew C. Lawson; with chemical analysis and co-operation in the field, by Juan de la C. Posada. Univ. of Cal., Bull. Dept. of Geology, vol. 1, pp. 1-59, pl. 1-4. Berkeley, 1893.

This report contains a general statement of the geology of the district survey, with special chapters on the granites and eruptive rocks.

The soda-rhyolite north of Berkeley; by Charles Palache. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 2, pp. 61-72, pl. 5. Berkeley, 1893.

The eruptive rocks of Point Bonita; by F. Leslie Ransome. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 3, pp. 71-114, pl. 6-7. Berkeley, 1893.

The Post Pliocene diastrophism of the coast of southern California; by Andrew C. Lawson. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 4, pp. 115-160, pl. 8-9. Berkeley, 1893.

The lherzolite-serpentine and associated rocks of the Potrero, San Francisco. On a rock from the vicinity of Berkeley, containing a new soda Amphibole; by Charles Palache. Univ. of Cal., Bull. Dept. of Geology, vol. 1, nos. 5-6, pp. 161-192, pl. 10-11. Berkeley, 1894.

The geology of Angel Island, by F. Leslie Ransome; with a note on the Radiolarian chert from Angel Island and from Buri-buri Ridge, San Mateo County, California. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 7, pp. 193-240, pl. 12-14. Berkeley, 1894.

The Radiolaria (suborder *Sphaeroidea*) described in this report are of the genera *Cenosphaera*, *Carposphaera*, *Cenellipsis*, *Ellipsidium*, *Lithapium;* suborder *Discoidea*, genera *Tripocyclia*, *Hagiastrum;* suborder *Cyrtoidea*, genera *Dictyomitra*, *Lithocampe*, and *Sethocapsa*.

The geomorphogeny of the coast of northern California; by Andrew C. Lawson. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 8, pp. 241-272. Berkeley, 1894.

On analcite diabase from San Luis Obispo County, California; by Harold W. Fairbanks. Univ. of Cal., Bull. of Geology, vol. 1, no. 9, pp. 273-300, pl. 15-16. Berkeley, 1895.

On Lawsonite, a new rock-forming mineral from the Tiburon peninsula, Marin County, California; by F. Leslie Ransome. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 10, pp. 301-312, pl. 17. Berkeley, 1895.

Critical periods in the history of the earth; by Joseph Le Conte. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 11, pp. 313-336. Berkeley, 1895.

A list of type specimens in the Geological Museum of the University of California, which have served as originals for figures and descriptions in the palæontology of the State Geological Survey of California under J. D. Whitney. Compiled for the use of workers in California geology, by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology. Berkeley, 1895. 3 pp.

In a few cases the supposed type differed slightly, but unessentially, from the figure. Names of such species are followed in the list by an interrogation point.

A list of type specimens, etc. (*Continued.*)

CRETACEOUS.

Callianassa Stimpsoni, Gabb; vol. 1, pl. 9, fig. 1*a*, 1*b*.

Amm. (*Haploceras*) *Breweri*, Gabb; vol. 1, pl. 10, fig. 7.
Amm. Cooperi, Gabb; vol. 1, pl. 14, fig. 23, 23*a*.
Amm. Haydeni, Gabb; vol. 1, pl. 10, fig. 8.
Amm. jugalis, Gabb; vol. 1, pl. 10, fig. 5.
Amm. Peruvianus, Von Buch; vol. 1, pl. 10, fig. 9.
Amm. (*Hoplites*) *Remondi*, Gabb; vol. 1, pl. 12, fig. 14.
Amm. (*Phylloceras*) *ramosus*, Gabb; vol. 1, pl. 11, fig. 12, pl. 12, fig. 12*b*.
Amm. suciaensis, Meek; vol. 1, pl. 21, fig. 11.
Amm. Tchamaensis, Gabb; vol. 1, pl. 10, fig. 4.
Baculites Chicoensis, Trask; vol. 1, pl. 14, fig. 29.
Belemnites impressus, Gabb; vol. 1, pl. 9, fig. 2.
Crioceras latus, Gabb; vol. 1, pl. 15, fig. 25.
Helicancyclus aequicostatus, Gabb; vol. 1, pl. 13, fig. 20.
Helicoceras declive, Gabb; vol. 1, pl. 28, fig. 200, 200*a*.
Helicoceras Breweri, Gabb (?); vol. 1, pl. 14, fig. 22.

Actaeonina Californica, Gabb; vol. 1, pl. 19, fig. 68 (fragments).
Actaeonina pupoides, Gabb; vol. 1, pl. 19, fig. 67.
Chemnitzia planulata, Gabb; vol. 1, pl. 19, fig. 70.
Cylindrites brevis, Gabb; vol. 1, pl. 29, fig. 223.
Eripachya Hoffmanni, Gabb; vol. 1, pl. 18, fig. 41.
Fusis Averilli, Gabb; vol. 1, pl. 18, fig. 34.
Fusus Kingi, Gabb; vol. 1, pl. 28, fig. 204.
Globiochonca Remondi, Gabb; vol. 1, pl. 19, fig. 69.
Lunatia Conradiana, Gabb; vol. 1, pl. 29, fig. 219.
Lysis duplicostata, Gabb; vol. 1, pl. 21, fig. 98.
Pugnellus manubriatus, Gabb (?); vol. 1, pl. 29, fig. 229, 229*a*.
Ringinella pinguis, Gabb; vol. 1, pl. 29, fig. 221*a*.
Tessarolax distorta, Gabb (?); vol. 1, pl. 20, fig. 82, 82*b*.
Turritella Chicoensis, Gabb; vol. 1, pl. 21, fig. 91.
Turritella seriatim-granulata, Gabb; vol. 1, pl. 20, fig. 88.
Turritella Veatchi, Gabb (?); vol. 1, pl. 20, fig. 90.

Anatina lata, Gabb; vol. 1, pl. 22, fig. 126.
Anomia lineata, Gabb; vol. 1, pl. 26, fig. 193.
Arca decurtata, Gabb; vol. 1, pl. 31, fig. 265, 265*a*.
Arca gravida, Gabb; vol. 1, pl. 30, fig. 264.
Astarte tuscana, Gabb; vol. 1, pl. 30, fig. 257.
Aucella Piochi, Gabb; vol. 1, pl. 25, fig. 173, 174.
Corbula cultriformis, Gabb; vol. 1, pl. 22, fig. 122.
Cyprinella (*Diodus*) *tenuis*, Gabb; vol. 1, pl. 23, fig. 151*a*.
Dosinia inflata, Gabb; vol. 1, pl. 23, fig. 149.
Homomya (*Panopea*) *concentrica*, Gabb; vol. 1, pl. 22, fig. 119.
Lithophagus oviformis, Gabb; vol. 1, pl. 25, fig. 168.
Martesia clausa, Gabb; vol. 1, pl. 22, fig. 115.
Meekia navis, Gabb; vol. 1, pl. 25, fig. 180.
Meekia radiata, Gabb; vol. 1, pl. 25, fig. 179*a*.
Meretrix longa, Gabb; vol. 1, pl. 23, fig. 147.
Meretrix ovalis, Gabb; vol. 1, pl. 30, fig. 251.
Modiola cylindrica, Gabb; vol. 1, pl. 25, fig. 167.

A list of type specimens, etc. (*Continued.*)

Mytilus pauperculus, Gabb; vol. 1, pl. 25, fig. 165.
Ostrea Breweri, Gabb; vol. 1, pl. 26, fig. 191.
Pholadomya Breweri, Gabb; vol. 1, pl. 22, fig. 123.
Pholadomya nasuta, Gabb; vol. 1, pl. 30, fig. 124.
Pinna Breweri, Gabb; vol. 1, pl. 25, fig. 175.
Tellina decurta, Gabb; vol. 1, pl. 23, fig. 137.
Tellina monilifera, Gabb (?); vol. 1, pl. 22, fig. 134, 134*a*.
Tellina ooides, Gabb; vol. 1, pl. 22, fig. 135, 135*a*.
Terebratella obesa, Gabb (?); vol. 1, pl. 26, fig. 194.
Trigonia Gibboniana, Gabb; vol. 1, pl. 25, fig. 178.
Trigonia Tryoniana, Gabb; vol. 1, pl. 25, fig. 176.
Venus (*Chione*) *varians*, Gabb; vol. 1, pl. 23, fig. 140.

Flabellum Remondianum, Gabb; vol. 1, pl. 26, fig. 199.

Astrocaenia (*?*) *petrosa*, Gabb (?); vol. 1, pl. 31, fig. 274, 274*a*.

EOCENE (TEJON).

Fusus martinez, Gabb; vol. 1, pl. 18, fig. 32.
Margaritella crenulata, Gabb; vol. 1, pl. 20, fig. 74.
Neptunea supraplicata, Gabb; vol. 1, pl. 18, fig. 40.
Neptunea gracilis, Gabb; vol. 1, pl. 18, fig. 42.
Trachytriton (*Tritonium*) *Diegoensis*, Gabb; vol. 1, pl. 18, fig. 44.

Crypta (*spirocrypta*) *pileum*, Gabb (?); vol. 1, pl. 29, fig. 233, 243*b*.

Arca Horni, Gabb; vol. 1, pl. 30, fig. 263.
Avicula pellucida, Gabb; vol. 1, pl. 25, fig. 172.
Barbatia Morsei, Gabb (?); vol. 1, pl. 32, fig. 286.
Dosinia gyrata, Gabb; vol. 1, pl. 23, fig. 148.
Lucina cumulata, Gabb; vol. 1, pl. 24, fig. 254.
Mysia polita, Gabb; vol. 1, pl. 30, fig. 256.
Mytilus ascia, Gabb; vol. 1, pl. 30, fig. 259.
Neaera dolabraeformis, Gabb (?); vol. 1, pl. 22, fig. 125.
Pectunculus (Axinaea) cor, Gabb; vol. 1, pl. 31, fig. 268, 268*a*.
Stalagmium (*Crenella*) *concentricum*, Gabb; vol. 1, pl. 24, fig. 169.
Unio penultimus, Gabb (?); vol. 1, pl. 24, fig. 164.

MIOCENE.

Cancer Breweri, Gabb; vol. 2, pl. 1, fig. 1.
Scutella Gibbsi, Gabb; vol. 2, pl. 13, fig. 66.

Echinarachinus Brewerianus, Gabb; vol. 2, pl. 12, fig. 64.

Ancillaria Fischi, Gabb (?); vol. 2, pl. 2, fig. 15.
Indet.; vol. 2, pl. 3, fig. 29.
Indet.; vol. 2, pl. 3, fig. 30.
Triptera clavata, Gabb; vol. 2, pl. 1, fig. 2.
Trochita inornata, Gabb (?); vol. 2, pl. 14, fig. 8.
Conchocele disjuncta, Gabb; vol. 2, pl. 7, fig. 48.
Modiola multiradiata, Gabb (?); vol. 2, pl. 8, fig. 52.
Ostrea Attwoodi, Gabb (?); vol. 2, pl. 11, fig. 58*b*.
Ostrea Tayloriana, Gabb; vol. 2, pl. 12, fig. 60.
Tapes truncata, Gabb; vol. 2, pl. 7, fig. 44.
Venus (*Chione*) *pertenuis*, Gabb; vol. 2, pl. 5, fig. 37.
Venus (*Chione*) *Whitneyi*, Gabb; vol. 2, pl. 5, fig. 40.

A list of type specimens, etc. (*Continued.*)

PLIOCENE.

Arca sulcicosta, Gabb; vol. 2, pl. 9, fig. 53.
Callista (*Standella*) *Voyi*, Gabb; vol. 2, pl. 5, fig. 41.
Gari (*Psammocola*) *alata*, Gabb; vol. 2, pl. 5, fig. 36.
Lucina (*Here*) *Richthofeni*, Gabb; vol. 2, pl. 8, fig. 49.
Zirphaea dentata, Gabb; vol. 2, pl. 3, fig. 31, 31*a*.

QUATERNARY.

Cancellaria (*Euclia*) *tritonidea*, Gabb; vol. 2, pl. 2, fig. 18.
Clathurella Conradiana, Gabb (?); vol. 2, pl. 1, fig. 12.
Muricidea paucivaricata, Gabb; vol. 2, pl. 14, fig. 1.
Surcula (*Pleurotoma*) *Carpenteriana*, Gabb; vol. 2, pl. 1, fig. 8.
Surcula (*Pleurotoma*) *Tryoniana*, Gabb; vol. 2, pl. 1, fig. 9.
Mercenaria perlaminosa, Gabb; vol. 2, pl. 5, fig. 38.
Pecten Cerroensis, Gabb; vol. 2, pl. 9, fig. 55.

On Malignite, a family of basic, plutonic, orthoclase rocks, etc.; by Andrew C. Lawson. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 12, pp. 371-428. Berkeley, 1896.

Sigmogomphius Le Contei, a new castoroid rodent from the Pliocene, near Berkeley, Cal.; by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 13, pp. 363-370. Berkeley, 1896.

The Great Valley of California: a criticism of the theory of isostasy; by F. Leslie Ransome. Univ. of Cal., Bull. Dept. of Geology, vol. 1, no. 14, pp. 371-428. Berkeley, 1896.

The geology of Point Sal; by H. W. Fairbanks. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 1, pp. 1-92, pl. 1-2. Berkeley, 1896.

On some Pliocene Ostracoda from near Berkeley; by Frederick Chapman. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 2, pp. 93-100, pl. 3.

The distribution of the Neocene sea-urchins of middle California, and its bearing on the classification of the Neocene formations; by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 4, pp. 109-118. Berkeley, 1898.

The geology of Point Reyes peninsula; by F. M. Anderson. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 5, pp. 119-133, pl. 4. Berkeley, 1899.

Some aspects of erosion in relation to the theory of the peneplain; by W. S. Tangier Smith. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 6, pp. 155-178. Berkeley, 1899.

Discusses objections to the theory of peneplains and a modification of the use of the term.

A topographic study of the islands of southern California; by W. S. Tangier Smith. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 7, pp. 179-230, pl. 5. Berkeley, 1900.

The geology of the central portion of the Isthmus of Panama; by Oscar H. Hershey. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 8, pp. 231-267. Berkeley, 1901.

A contribution to the geology of the John Day Basin; by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 9, pp. 269-314. Berkeley, 1901.

Mineralogical notes; by Arthur S. Eakle. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 10. Berkeley, 1901.

Contributions to the mineralogy of California; by Walter C. Blasdale. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 11. Berkeley, 1901.

Science Association of the University of California. Proceedings of general meeting. Vol. 1, no. 1, report of the expedition to the John Day fields; by John C. Merriam.

The Harriman Alaskan expedition; by W. E. Ritter. Berkeley, 1899. 18 pp.

The Berkeley Hills: a detail of Coast Range geology; by A. C. Lawson and Charles Palache. Univ. of Cal., Bull. Dept. of Geology, vol. 2, no. 12, pp. 349-450, pl. 10-17. Map. Berkeley, 1901.

The Quaternary of southern California; by Oscar H. Hershey. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 1, pp. 1-30, plate. Berkeley, 1901.

Colemanite from southern California; by Arthur S. Eakle. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 2, pp. 31-50, pl. 1-4. Berkeley, 1902.

The Eparchean interval: a criticism of the use of the term Algonkian; by Andrew C. Lawson. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 3, pp. 51-62. Berkeley, 1902.

Triassic Ichthyopterygia from California and Nevada; by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 4, pp. 63-108, pl. 5-18. Berkeley, 1902.

The author describes from the Upper Triassic of northern California the following species: *Shastasaurus perrini, S. osmonti, S. Alexandrae, S. careyi, S. altispinus, S. pacificus.*

The igneous rocks near Pajaro; by John A. Reid. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 6, pp. 173-190, pl. 18. Berkeley, 1902.

Minerals from Leona Heights, Alameda County, California; by Waldemar T. Schaller. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 7, pp. 191-217, pl. 19. Berkeley, 1902.

Plumasite: an oligoclase-corundum rock near Spanish Peak, California; by Andrew C. Lawson. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 8, pp. 219-229. Berkeley, 1902.

Palacheite; by Arthur S. Eakle. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 9, pp. 231-236, pl. 20. Berkeley, 1902.

Two new species of fossil turtles from Oregon; by O. P. Hay. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 10, pp. 237-241. Berkeley, 1902.

A new tortoise from the auriferous gravels of California; by W. J. Sinclair. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 11, pp. 243-248. Berkeley, 1902.

New Ichthyosaura from the Upper Triassic of California; by John C. Merriam. Univ. of Cal., Bull. Dept. of Geology, vol. 3, no. 12, pp. 249-263, pl. 21-24. Berkeley, 1902.

Leptochcirus, nov. gen.; *L. Zitteli; Toretocnemus*, nov. gen.; *T. Californicus.*

PART II.

PUBLICATIONS OF THE UNITED STATES GOVERNMENT.

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UNITED STATES SENATE AND HOUSE DOCUMENTS.

Report of the exploring expedition to the Rocky Mountains in 1842, and in Oregon and North California in the years 1843-44; by Bvt. Capt. J. C. Fremont, U. S. Army. Washington, 1845. 693 pp., 24 pl., and 3 maps. 28th Cong., 2d sess., Senate Doc. 174.

The first part of this report was a reprint of the expedition of 1842. (Senate Doc. 243, 27th Cong., 3d sess., 1842.)

The report contains a few geological notes of California, and a description of the fossils, by James Hall. The specimens described are all from Muddy Creek, Wyoming.

This report contains a reprint of the expedition of 1842, and the accompanying map exhibits the routes followed during the years 1843 and 1845. The map is on a scale of 32 miles to 1 inch, and was drawn by Charles Preuss, whose skill in sketching topography in the field and in representing it on the map has probably never been surpassed. The map may serve for a model. The profile was made from barometrical observations drawn with a horizontal scale of 47.35 miles to the inch, and a vertical scale of 8,500 feet to the inch.

Geographical memoir upon Upper California in illustration of his map of Oregon and California; by John Charles Fremont. Addressed to the Senate of the United States. Washington, 1848. 67 pp. Map. Scale, 47.35 miles to 1 inch. (30th Cong., 1st sess., Senate Misc. Doc. 148.)

Map of Oregon and Upper California, from the surveys of John C. Fremont and other authorities. Drawn by C. Preuss under the order of the Senate of the United States. Washington, 1848. Scale, 47.35 miles to 1 inch.

Notes of a military reconnoissance from Fort Leavenworth, in Missouri, to San Diego, in California; including parts of the Arkansas, Del Norte, and Gila rivers; by Maj. W. H. Emory, U. S. Army. Washington, 1848. 416 pp., 41 pl. and map. Scale, 24 miles to 1 inch. (30th Cong., 1st sess., Ex. Doc. 41.)

Report of Lieut.-Col. P. St. George Cooke of his march from Santa Fe, New Mexico, to San Diego, Upper California. Washington, 1848. 13 pp. and map. Scale, 12 miles to 1 inch. (30th Cong., 1st sess., Ex. Doc. 41, pp. 551-563.)

Journal of Capt. A. R. Johnson, U. S. Army. (Expedition from Santa Fe to San Diego.) Washington, 1848. 48 pp. (30th Cong., 1st sess., Ex. Doc. 41, pp. 567-614.)

Journal of the march of the Mormon Battalion of Infantry Volunteers, under the command of Lieut.-Col. P. St. George Cooke, from Santa Fe, New Mexico, to San Diego, California. Washington, 1849. 85 pp. (30th Cong., spec. sess., Senate Doc. 2.)

United States Exploring Expedition, under the command of Charles Wilkes, U. S. Navy. Vol. 10, Geology, by James D. Dana. Philadelphia, 1849. pp. xii, 9, and 756. 5 maps and folio atlas of 21 pl.

Only two hundred copies of this report were published. (Letter of J. D. Dana, September 2, 1890.)

The author gives an account of the geology of Shasta Mountains, also that of San Francisco Bay, with a description of the fossils of Astoria, Oregon.

A synopsis of this report was published in Wilkes's Western America, including California and Oregon, with maps of those regions and of "The Sacramento Valley," from actual surveys. Philadelphia, 1849.

REPORTS OF THE SECRETARY OF WAR.

Information in relation to the geology of California:

Report of P. T. Tyson upon the geology of California. 31st Cong., 1st sess., Senate Ex. Doc. 47. Washington, 1850. 74 pp. 9 sections and 1 map.

This report contains articles on the geology of part of the Sierra Nevada; geology of the Coast Range; geological structure of Sacramento Valley; review of the geological changes in California; gold regions of the Sierra Nevada; the quicksilver mines; other mineral resources, and their industrial applications.

Report by General Smith, dated October 7, 1849. pp. 75-108.

Report of Lieutenant Talbot to General Smith of his explorations in Oregon, dated October 5, 1849. pp. 108-116.

Report of Professor Frazer on minerals forwarded by General Smith, dated March 21, 1850. pp. 116-117.

Report of General Riley, dated January 1, 1850. pp. 118-119.

Report of Lieutenant Ord to General Riley of investigations in the southern part of Alta California, dated October 31, 1849. pp. 119-127.

Part II. Report of the Secretary of War in further compliance with the resolution of the Senate, calling for copies of Report on the Geology and Topography of California. Washington, 1850. 37 pp., and 3 maps. (31st Cong., 1st sess., Senate Ex. Doc. 47.)

This report contains: A topographical memoir accompanying maps of the Sacramento Valley, etc. (scale, 10 miles to 1 inch); by Lieut. G. H. Derby. pp. 2-16.

Reconnoissance made by Capt. W. H. Warner of a route through the Sierra Nevada by the upper Sacramento. pp. 16-34, with maps.

Exploration of Monte Diablo, and the valley lying between this mountain and the southern shore of Suisun Bay; by Lieut. R. S. Williamson. pp. 34-37.

Geology and industrial resources of California; by Philip T. Tyson. Baltimore, 1851. xxxiv, 127, and 37 pp. 9 sections and 3 maps.

A republication of the above report, with an introduction and an index.

Report of Secretary of War. 1850. (31st Cong., 2d sess., Senate Ex. Doc. 1.)

The report of Major D. H. Vinton contains an account of borings near Benicia. pp. 278-279.

T. Butler King's report on California. 1850. (31st Cong., 1st sess., Ho. of. Rep. Ex. Doc. 59.)

This document was published in Washington in another form by Gideon & Co., 1850. 72 pp. 8vo.

The author gives an account of the geology of the gold regions.

Letter from Col. Richard B. Mason. (31st Cong., 1st sess., Ho. of Rep. Doc. 17, 1850, pp. 528-536.)

This letter is the first official report on the discovery of gold in California. Colonel Mason states that on the 12th of June, 1848, in company with Lieut. W. T. Sherman, he started on a tour through the northern part of California to visit the newly discovered gold placer region in the valley of the Sacramento. He gives a description of the country along the American River and an historical account of the mining regions. He also gives a description of the quicksilver mines near San Jose.

Tour of the gold regions; by Bvt. Brig.-Gen. Bennett Riley. (31st Cong., 1st sess., Ho. of Rep. Doc. 17, 1850, pp. 785-792.)

United States and Mexican Boundary Survey, under the orders of Lieut.-Col. W. H. Emory. Geology and palæontology of the boundary, by James Hall; pp. 103-140, Part 2. Description of Cretaceous and Tertiary fossils, by T. A. Conrad; pp. 141-165. (34th Cong., 1st sess., Senate Ex. Doc. 108. Washington, 1857.)

Chapter V contains description of the geology of southern California, with a section of lignite bluff near San Diego.

Report upon Pacific wagon roads. Washington, 1858. (35th Cong., 2d sess., Ho. of Rep. Ex. Doc. 108, Senate Doc. 36.)

Notes on route from near the Tejon Pass, through western New Mexico and the Colorado to Santa Fe in the fall of 1853; by Capt. F. C. Aubrey. 12 pp. [Published by Congress in 1854 and in the California journals.]

This was the route through the gold country on the head (southern) waters of the San Juan and the upper branches of the Rio Salodo, or Salinas, of the Gila River.

Report of survey on the Union and Central Pacific railways; by W. T. Twining. Washington, 1875. (44th Cong., 2d sess., Ho. of Rep. Doc. 38.)

Mining debris in California. Preliminary report; by Col. George H. Mendell. Submitted January 31, 1881.

Mining debris in California rivers. Letter of the Secretary of War. A final report upon the system to prevent further injury to the navigable waters of California from mining debris. 1882. 110 pp. 2 maps. Scale, 12 miles to 1 inch. (47th Cong., 1st sess., Ho. of Rep. Ex. Doc. 98.)

Mining debris in California. Letter of the Secretary of War. Report of Board of Government Engineers respecting the adjustment of the conflict between the mining and farming sections, and the rehabilitation of the mining industry in California. 1891. 124 pp. 2 maps. (Ex. Doc. 267, H. R., 51st Cong., 2d sess.)

The future of silver, by Suess Edward; translated by Robert Stein, U. S. Geol. Survey. Washington, 1893. 101 pp. (53d Cong., 1st sess., Senate Misc. Doc. 95.)

The author gives a sketch of the California gold fields.

U. S. NAVY DEPARTMENT.

Letter from the Secretary of the Navy, inclosing report of experiments on the coal of the Pacific Coast, in compliance with a resolution of the House of March 22, 1872. (42d Cong., 2d sess., Ho. of Rep. Ex. Doc. 206.)

This report of Chief Engineer B. F. Isherwood, U. S. Navy, contains a report on the brown coal from Mount Diablo coal mines of California.

REPORTS OF EXPLORATIONS AND SURVEYS FOR A RAILROAD FROM THE MISSISSIPPI RIVER TO THE PACIFIC OCEAN.

Report of explorations for a railway route, near the 35th parallel of latitude from the Mississippi River to the Pacific Ocean; by Lieut. A. W. Whipple. (33d Cong., Ho. of Rep. Doc. 125. 1854.)

Contains resume of a geological reconnoissance extending from Napoleon, at the junction of the Arkansas with the Mississippi, to the Pueblo de los Angeles, in California; by Jules Marcou. pp. 40-48.

Pacific Railroad Reports, vol. 3. Resume of a geological reconnoissance, extending from Napoleon, at the junction of the Arkansas with the Mississippi, to the Pueblo de los Angeles, in California; by Jules Marcou. pp. 165-175.

This resume was reprinted from the preliminary report of Lieutenant Whipple. Chap. VI, p. 40, House Doc. 129. Washington, 1855.

The report has a geological map of the route explored near the parallel of 35 deg. north latitude, from the Mississippi River to the Pacific Ocean.

Pacific Railroad Reports, vol. 5. Routes in California to connect with the routes near the 35th parallel and 32d parallel explored by Lieut. R. S. Williamson in 1853. Geological report by William P. Blake. Washington, 1856. (33d Cong., 2d sess., Senate Ex. Doc. 78.)

This report contains general observations upon the geology of the route:

Chapter I. San Francisco to the San Joaquin River.
II. Grayson's Ferry, on the San Joaquin, to Fort Miller.
III. Fort Miller and the vicinity; Fort Miller to Ocoya Creek.
IV. Ocoya Creek to the Tejon.
V. Tejon to San Amedio; Canada de las Uvas.
VI. Tejon to the Great Basin and Pass of San Francisquito; Pass of San Francisquito to the Mojave River.
VII. Mojave River, by Williamson's Pass, to San Fernando and Los Angeles; Los Angeles to San Bernardino; Cajon Pass.
VIII. San Bernardino to the Colorado Desert; Colorado Desert to Carrizo Creek and Warner's Valley.
IX. Warner's to the Colorado Desert; Colorado Desert to the mouth of the Gila; Camp Yuma and the vicinity.

Pacific Railroad Reports, vol. 5. (*Continued.*)

Article X. Fort Yuma to Carrizo Creek; Carrizo Creek to San Diego.
XI. Observations on the orography and general features of relief of the middle and southern portions of California.
XII. Geology of the vicinity of San Francisco.
XIII. Tertiary formations of Ocoya Creek, Monterey, and other localities.
XIV. Observations on the Tulare Valley.
XV. Geology of the Tejon Pass and Canada de las Uvas; section of the Sierra Nevada.
XVI. Observations on the southern part of the Great Basin.
XVII. The Colorado Desert.
XVIII. Notes on the Gold Region.
XIX. Building materials; coal; lignite; bitumen.
XX. Metals, ores, and minerals.

Appendix, Article I. Notice of the fossil fish; by Louis Agassiz. pp. 313-316, pl. 1.

The following species from Ocoya Creek are described and figured: *Echinorhinus Blakei*, n.sp.; *Scymnus occidentalis*, n.sp.; *Galeocerdo productus*, n.sp.; *Prionodon antiquus*, n.sp.; *Hemipristic heteropleurus*, n.sp.; *Carcharodon rectus*, n.sp.; *Oxyrhina plana*, n.sp.; *O. tumula*, n.sp.; *Lamna clavata*, n.sp.; *L. ornata*, n.sp.; *Zygobates* sp.?

Appendix, Article II. Descriptions of the fossil shells; by T. A. Conrad. pp. 317-329, pl. 2-9.

From Canada de las Uvas: *Cardium linteum*, n.sp.; *Dosinia alta*, n.sp.; *Meretrix Uvasana*, n.sp.; *M. Californiana*, n.sp.; *Crassatella Uvasana*, n.sp.; *C. alta*, Conrad; *Mytilus humerus*, n.sp.; *Cardita planicosta; Natica oetites*, Conrad; *N. gibbosa*, Lea; *N. alveata; Turritella Uvasana*, n.sp.; *Volutatithes Californiana*, n.sp.; *Busycon? Blakei*, n.sp.; *Clavatula Californica*, n.sp.

From Ocoya Creek: *Meretrix decisa*, n.sp.; *Natica Ocoyana*, n.sp.; *N. geniculata*, n.sp.; *Bulla jugularis*, n.sp.; *Pleurotoma transmontana*, n.sp.; *P. Ocoyana*, n.sp.; *Syctopus Ocoyana*, n.sp.; *Turritella Ocoyana*, n.sp.; *Colus arctatus*, n.sp.; *Tellina Ocoyana*, n.sp.; *Pecten Nevadanus*, n.sp.; *P. catilliformis*, n.sp.; *Cardium* sp.?; *Arca* sp.?; *Solen* sp.?; *Dosinia* sp.?; *Venus* sp.?; *Cytherea decisa*, Conrad.

From San Diego: *Cardium modestum*, n.sp.; *Nucula decisa*, n.sp.; *Carbula Diegoana*, n.sp.; *Tellina Diegoana*, n.sp.; *Mactra Diegoana*, n.sp.; *Narica Diegoana*, n.sp.; *Trochita Diegoana*, n.sp.; *Crucibulum spinosum*, n.sp.

From Monterey County: *Meretrix uniomeris*, n.sp.; *Tellina congesta*, n.sp.; *Modiola contracta*, n.sp.

From Tulare Valley: *Meretrix Tularena*, n.sp.; *Arca microdonta*, n.sp.; *Stramonita petrosa*, n.sp.

From San Pedro: *Tellina Pedroana*, n.sp.; *Tapes diversum*, n.sp.; *Saxicava abrupta*, n.sp.; *Petricola Pedroana*, n.sp.; *Schizothoerus Nuttalli*, n.sp.; *Mytilus Pedroana*, n.sp.; *Penitella spelaea*, n.sp. (Recent); *Fissurella crenulata*, Sow.; *Buccinum interstriatum?*

Pacific Railroad Reports, vol. 5. (*Continued.*)

From Carmello: *Lutraria Traskei*, n.sp.

From Colorado Desert: *Pecten deserti*, n.sp.; *Anomia subcostata*, n.sp.; *Ostrea vespertina*, n.sp.; *O. Heermanni*, n.sp.; *Anodonta Californiensis*, Lea.

From San Fernando: *Ostrea* sp.? *Pecten* sp.?

From Benicia: *Turritella biseriata*, n.sp.; *Trochus* sp.?

Appendix, Article IV. Letter from Prof. J. W. Bailey, describing the structure of the fossil plant from Posuncula River. p. 337. (This plant was from a bowlder in the bed of Kern River, west slope of the Sierra Nevada.)

Pacific Railroad Reports, vol. 6. Geological report of routes in California and Oregon explored by Lieuts. R. S. Williamson and H. L. Abbott; by John S. Newberry. (33d Cong., 2d sess., Senate Ex. Doc. 78. 1857.)

This report contains the following:

Chapter I. Geology of the vicinity of San Francisco.
II. Geology of the Sacramento Valley.
III. Geology of the Western range, Sierra Nevada.
IV. Geology of Pit River and Klamath Basin.

Pacific Railroad Reports, vol. 6, no. 2. Description of the Tertiary fossils collected on the survey; by T. A. Conrad.

The following species are described and figured in this report:

Schizopyga Californiana, n.sp., Santa Clara, Cal.
Cryptomya ovalis, n.sp., Monterey County.
Thracia mactropsis, n.sp., Monterey County.
Mya Montereyana, n.sp., Monterey County.
M.? subsinuata, n.sp., Monterey County.
Arcopagia medialis, n.sp., Monterey County.
Tapes linteatum, n.sp., California.
Arca canalis, n.sp., Santa Barbara.
A. trilineata, n.sp., Santa Barbara.
A. congesta, California.
Axinoea Barbarensis, n.sp., Santa Barbara.
Mulinia densata, n.sp., Santa Barbara.
Dosinia longula, n.sp., Monterey.
D. alta, n.sp., Monterey.
Pecten Pabloensis, n.sp., San Pablo Bay.
Pallium estrellanum, n.sp., Estrella Valley.
Janira bella, n.sp., Santa Barbara.
Ostrea titan, n.sp., San Luis Obispo.
Malea ringens; Dolium ringens (Cassis), Swainson.
Turritella altilira, n.sp., Gatun, Isthmus of Darien.
T. Gatunensis, n.sp., Gatun.
Triton, sp.?; *Cytherea* (*Meretrix*) *Dariena; Tamiosoma gregaria*, n.sp., Monterey County.
Pandora bilirata, n.sp., Santa Barbara.
Cardita occidentalis, n.sp., Santa Barbara.
Diadora crucibuliformis, n.sp., Santa Barbara.

Pacific Railroad Reports, vol. 6, no. 2. (*Continued.*)

The author discusses the age of the formation afterward called by the California geologists the Chico group. Newberry admits the Tertiary character of a part of the fossils, but is inclined to refer the formation to the Cretaceous, because of the presence in it of *Ammonites*, etc.

Pacific Railroad Reports, vol. 7. Routes in California to connect with the routes near the 35th and 32d parallel and routes near the 32d parallel, between the Rio Grande and Pimas villages, explored by John G. Parke in 1854-55. Geological report by Thomas Antisell. (33d Cong., 2d sess., Senate Ex. Doc. 78. 1857.)

This report contains chapters on the physical geography of the Pacific Coast; geology of the Coast Ranges; Santa Clara Valley and Pajaro River Valley; Salinas River Valley; Santa Margarita Valley; Point Pinos Mountains and Sierra San Jose; Santa Maria River and Cuyama Valley; Santa Lucia Mountains; Valley of San Luis Obispo, Santa Barbara Mountains; geology of the Sierra Susanna and Monica; Plains of San Fernando; Los Angeles and San Bernardino; with the geology of the Cordilleras, etc.; Estrella River; Panza and Carrizo; Mojave River Valley; bituminous effusions; Quaternary period in California; geology of the district from San Diego to Fort Yuma, and from Fort Yuma to the Pimas villages; etc., etc.

Pacific Railroad Reports, vol. 7. Report on the Palæontology of the survey; by T. A. Conrad. Chapter XXIX, pp. 189-196, with 10 pl.

The author remarks that the Miocene of Santa Barbara contains a group of shells more analogous to the fossils of the Atlantic slope than to the existing shells of California; but it is evident that there must be subdivisions in the Tertiary deposits of California, which range between the Eocene and Pliocene periods, for the group of the Estrella Valley and Santa Ynez (Barbara) Mountains does not appear to contain one species, even, analogous to any in the Santa Barbara beds, and, on the contrary, some of them remind us of the existing Pacific fauna.

The author describes and figures the following new species:

From Santa Margarita, Salinas Valley: *Hinnetes crassa.*

From San Rafael Hills and Santa Barbara County: *Pecten Meeki; P. altiplicatus; Arcopagia unda.*

From Carrizo Creek, Colorado Desert, and Estrella River Valley: *Pecten deserti*, Conrad; *Pallium Estrellanum, Spondylus Estrellanus; Arcopagia unda; Cyclas Estrellana; Ostrea panzana; Glycimeris Estrellanus; Balanus Estrellanus; Astrodapsis Antiselli.*

From Santa Ynez and Santa Ynez Mountains: *Pecten discus; Pachydesma Inezana; Pecten magnolia; Crassatella collina; Mytilus Inezensis; Turritella Inezana; T. variata; Natica Inezana; Tapes Inezensis.*

Pacific Railroad Reports, vol. 7. (*Continued.*)

From San Buenaventura: *Tapes montana.*

From Pajaro River: *Venus Pajaroana.*

From Sierra Monica: *Cyclas permacra; Ostrea subjecta.*

From San Luis Obispo Valley: *Arca Obispoana.*

From Gaviota Pass: *Ostrea panzano; Mactra? Gaviotensis; Trochita costellata.*

From Salinas River, Monterey County: *Dosinia alta; D. longula; D. montana; D. subobliqua.*

From Ranch Triumpho, Los Angeles: *Lutraria transmontana; Axinea Barbarensis.*

Report of Mr. T. A. Conrad on the fossil shells collected in California by Wm. P. Blake, geologist of the expedition under the command of Lieut. R. S. Williamson, etc. Washington, 1855. 34 pp. (House Doc. 129.)

The fossils described in this report were afterward republished, with figures, in the fifth volume of Explorations and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean.

MINERAL RESOURCES OF THE STATES AND TERRITORIES WEST OF THE MISSISSIPPI.

Report of 1867; by J. Ross Browne and James W. Taylor, U. S. Mining Commissioners. Washington, 1867. 360 pp.

Historical sketch of gold and silver mining on the Pacific Slope; by J. Ross Browne and J. W. Taylor. pp. 13-36.

Geological formation, etc., of Pacific Slope; by William Ashburner. pp. 37-49. (Contains articles on the gold-mining interest of California; characteristics of the gold belt; northern mining district; mining in the Sierras.)

Condition of gold and silver mining on the Pacific Coast; by J. Ross Browne and James W. Taylor. pp. 49-85.

The copper resources of the Pacific Slope; geological formation in which copper is found; by J. Ross Browne and James W. Taylor. Section V, pp. 138-169.

Quicksilver mines in California; New Almaden mines, products and exports. Section VI, pp. 170-178. (This article contains a description of the New Almaden mines, with extracts of a report by Prof. B. Silliman, Jr., from the Am. Jour. Sci. for September, 1864.)

Borax, sulphur, tin, and coal. Section VII, pp. 178-193. (Contains articles on the discovery of borax in California, etc.; reports on tin, from the Geological Survey of California, vol. 1, p. 180; with report on the coal mines of the West Coast of North America, by W. M. Gabb.)

Report of 1867. (*Continued.*)

Annotated catalogue of the principal mineral species hitherto recognized in California and adjoining States and Territories; by William P. Blake. Section IX, pp. 200-215. (This article also contains notes on the geological distribution and geology of the precious metals and valuable minerals on the Pacific Slope of the United States, with a section across the Mariposas.)

History of California; by E. Randolph. pp. 268-305.

Acquisition of California; by John W. Dwinelle. pp. 306-320.

Report of 1868; by J. Ross Browne, U. S. Mining Commissioner. Washington, 1868. 674 pp.

General condition of the mining interest; by J. Ross Browne. pp. 12-298.

The Mother Lode of California. pp. 14-19.

Miscellaneous minerals of Pacific Coast. pp. 207-266.

Agricultural resources of California. pp. 266-281.

Treasure shipments; precious metals, etc. pp. 289-298.

Lower California geographical and physical features; by W. M. Gabb. pp. 630-639.

So little is accurately known in regard to the geology of Lower California, that it seems desirable to include this notice and a list of the works on Lower California in this bibliography. The most important publications with regard to the geology of Lower California are:

1. Notes on the geology of Baja California, Mexico; by W. Lindgren. Proc. Cal. Acad. Sci., 2d series, vol. 1, 1888, p. 173; vol. 2, 1889, p. 1; vol. 3, 1890, p. 26.

2. Some geological notes are also found in the reports of the Mexican boundary and Pacific Railway surveys.

3. Geological sketch of Lower California; by S. I. Emmons and G. P. Merrill. Bull. Geol. Soc. Am., vol. 5, 1894, pp. 489-514, with map.

4. Explorations in the Cape Region of Baja California; by Gustav Eisen. Proc. Cal. Acad. Sci., vol. 5, 1895, p. 733; map.

5. Notes on the geology and natural history of the peninsula of Lower California; by Geo. S. Merrill. U. S. Natl. Mus. Report, 1895.

Report of 1869; by R. W. Raymond, U. S. Mining Commissioner. Washington, 1870. 256 pp.

This includes notes on the Almaden mines and a chapter on the Mother Lode of California.

Report of 1870; by R. W. Raymond, U. S. Mining Commissioner. Washington, 1870. 805 pp.

California mines; by W. A. Skidmore. pp. 13-87.

Dead rivers of California; by J. S. Hittell. pp. 63-67.

Report of 1870; by R. W. Raymond, U. S. Mining Commissioner. Washington, 1872. 566 pp.

Chapter on California mines; by W. A. Skidmore. pp. 11-92.
Deep placer mining in California; by W. A. Skidmore. pp. 52-90.
List of stamp-mills in California. Chapter XVI.

Report of 1871; by R. W. Raymond. Washington, 1873. 566 pp.

Chapter on California; by W. A. Skidmore. pp. 13-140.
Diamonds in El Dorado County; by W. A. Goodyear. p. 27.

Report of 1872; by R. W. Raymond. Washington, 1873. 550 pp.

Chapter on California; by W. A. Skidmore. pp. 7-107.
List of mining claims in California. pp. 102-107.
Treatment of gold-bearing ores in California; by G. F. Deetken. Chapter XI.
Pliocene rivers of California; by A. W. Bowman. Chapter XVI.
Hydraulic mining in California; by Charles Waldeyer. Chapter XVII.
This report also contains a geological map of the United States, by C. H. Hitchcock and W. P. Blake; also, a map showing a portion of the mining region in Placer and El Dorado counties, and maps of Slate Creek Basin, Sierra County.

Report of 1873; by R. W. Raymond. Washington, 1874. 585 pp.

Chapter on California; by W. A. Skidmore. pp. 13-154.
Quicksilver in California; by Charles G. Yale. pp. 27-29.
Beach sands of Gold Bluff; by A. W. Chase. pp. 145-147.
Mining and metallurgy of quicksilver in California; by Louis Janin, Jr. Chapter XI.
The geological formation of iron deposits in California is given on p. 44, extract from James D. Hague and Clarence King's report of the Sierra Iron and Mining Company.

Report of 1874; by R. W. Raymond. Washington, 1875. 540 pp.

Chapter on California; by W. A. Skidmore. pp. 11-194.
Seam mining. p. 81.
Geology of the Sierra Nevada in its relations to vein mining, with map and tabular exhibit of results of mining; by Amos Bowman. Chapter XVIII.
History of relative values of gold and silver. Chapter XIX.
An abstract of Dr. J. G. Cooper's paper on the discovery of lignites in Amador County and other counties in the foothills of the Sierra Nevada is given on p. 75.

Report of 1875; by R. W. Raymond. Washington, 1877. 519 pp.

Chapter on California; by W. A. Skidmore. pp. 3-131.

Quicksilver in California; by J. B. Randol. pp. 4-21.

Extinct rivers of the auriferous belt of California; by C. J. Brown. pp. 65-68.

Geology of Plumas County, with map; by J. A. Edman. pp. 109-128.

Petroleum in California; by F. A. Clarke. pp. 21-22.

REPORTS OF THE UNITED STATES MINT.

Report of 1880. Statistics of production of the precious metals in the United States for 1880; by H. C. Burchard, Director of U. S. Mint. Washington, 1881. 443 pp.

Contains chapter on California mines, by W. A. Skidmore and Charles G. Yale; Contributions to California geology, by Melville Attwood; Auriferous gravels, by Charles G. Yale.

Report of 1881; by H. C. Burchard, Director of U. S. Mint. Washington, 1882. 765 pp.

Contains chapter on California mines, by A. M. Lawver; Milling of gold quartz, by Melville Attwood; Mining machinery in California, by Charles G. Yale; Gold from sulphurets, by Melville Attwood; Auriferous gravels of California, by John Hays Hammond; Old river-beds of the Sierra Nevada of California, by James J. McGillivray.

Report of 1882; by H. C. Burchard, Director of U. S. Mint. Washington, 1883. 873 pp.

Contains chapter on California mines, by J. R. Hardenburg; Placer gold in California, by Henry G. Hanks.

Report of 1883; by H. C. Burchard, Director of U. S. Mint. Washington, 1884. 858 pp.

Contains chapter on California mines, by J. R. Hardenburg; Condition of mining in California, by W. A. Skidmore; Drift mining in California, by R. L. Dunn.

Report of 1884; by H. C. Burchard, Director of U. S. Mint. Washington, 1885. 644 pp.

Contains a chapter on California mining, by A. M. Lawver; Gold and silver mining in California, past, present, and prospective, by W. A. Skidmore; Forms in which gold occurs in nature, by W. P. Blake.

Reports of 1885, 1886, 1887, 1888; by Jos. P. Kimball, Director of U. S. Mint.

In each of these reports the chapter on California mining is by Israel Lawton.

Reports of 1889, 1890, 1891, 1892; by E. O. Leech, Director of U. S. Mint.

In each of these reports the chapter on California mining is by Charles G. Yale, except in 1892, when it was by W. H. Dimond.

Reports of 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902; by R. E. Preston, Director of U. S. Mint.

In each of these reports the chapter on California mining is by Charles G. Yale.

UNITED STATES COAST SURVEY.

Report of 1855. Observations on the physical geography and geology of the coast of California from Bodega Bay to San Diego; by W. P. Blake. pp. 376-398. 4 pl.

Part II. Geology of the principal bays and ports from Point Reyes to San Diego:

1. Punta de los Reyes. The end of the point composed of granite; form of the point; Tertiary strata; etc.
2. San Francisco. Golden Gate; character of the shores; rocks forming the points of the peninsula of San Francisco; sandstone strata uplifted; quarries; probable age; metamorphosed rock; erupted rocks and serpentine alluvial deposits; sand dunes; etc.
3. Monterey. Point Pinos; Cypress Point; San Carlos; Point Pinos of granite; Tertiary strata; fossils and infusoria; rocks of Cypress Point; granite and conglomerate; rock formation of San Carlos Bay; Point Lobos.
4. San Luis Obispo and Santa Barbara. Recent Tertiary strata; mountains, probably of sandstone; resemblance to volcanic rocks.
5. San Pedro and vicinity. Absence of mountain ridges; banks of Tertiary strata; sandstone with sun-cracks; disturbance of the strata; fossils; bitumen.
6. San Diego. Tertiary strata forming rounded hills; Tertiary strata of the slope; fossils; trappean rock.
7. Islands near the coast. Probably composed of sandstone and shale; flexures of the strata of Santa Catalina; etc.

Notice of earthquake waves, etc.; by A. D. Bache. *Idem,* p. 342; also, in Report of 1862, p. 238.

UNITED STATES CENSUS REPORTS.

Report on the physical and agricultural features of the State of California, with a discussion of the present and future of cotton production in the State; also, remarks on cotton culture in New Mexico, Utah, Arizona, and Mexico; by E. W. Hilgard. 10th U. S. Census Report, vol. 6, part II. Washington, 1884.

A general description of the geology of the State is given on page 8. The outlines of the physical geography of the State, pp. 7, 83.

Report on the building-stones of the United States, and statistics of the quarry industry for 1880; by George P. Merrill. 10th U. S. Census Report, vol. 10, p. 357. Washington, 1884.

Geological sketch of the Pacific division; by George F. Becker. 10th U. S. Census Report, vol. 13, pp. 5-59. Washington, 1885.

Notes on the sample of iron ores collected west of the 100th meridian; by Bayard T. Putnam. 10th U. S. Census Report, vol. 15, pp. 469-505. maps. Washington, 1886.

Report of mineral industries of the United States. 11th U. S. Census Report, 1890.

Contains special reports as follows: Gold and silver, by R. P. Rothwell; Quicksilver, by James B. Randol; Coal, by John H. Jones; Petroleum, by J. D. Weeks; Natural gas, by J. D. Weeks; Asphaltum, by E. W. Parker; Stone, by W. C. Day; Precious stones, by G. F. Kunz; Infusorial earth, by E. W. Parker; Chapter on California mines, by Charles G. Yale.

U. S. GEOGRAPHICAL AND GEOLOGICAL SURVEYS WEST OF THE 100TH MERIDIAN.

Lieut. GEO. M. WHEELER, U. S. Corps of Engineers, in charge.

Vol. 3, Part I. Report on the geology of portions of Nevada, Utah, California, and Arizona, examined in the years 1871-72; by G. K. Gilbert. Washington, 1875.

Annual report of Lieut. George M. Wheeler, for the fiscal year ending June 30, 1876.

Annual report of Chief of Engineers, 1876. Appendix JJ.

Report on the geology of a portion of southern California; by Jules Marcou. *Idem,* Appendix H1, pp. 378-392.

This report contains articles on the Pliocene rocks of Los Angeles; the sierra of Santa Monica; Sierra Madre; Pacona or Pacoima Canyon; geology of the vicinity of the San Fernando Mission; the San Fernando sierra; asphaltum and mineral oil near San Francisquito ranch; Sierra Liebre and California desert; Tertiary rocks, Canada de las Uvas, Fort Tejon, and of California; glacial rocks of Southern California and Pike's Peak; mountain chains and their ages; Coast Range; sierras of San Fernando and Santa Monica; hills of Los Angeles, etc.

Report on the geological and mineralogical character of southern California and adjacent regions; by Oscar Loew. *Idem,* Appendix H2, pp. 393-419.

Report on the geology of the mountain ranges from La Veta Pass to the head of the Pecos; by A. R. Conkling. *Idem,* Appendix H4, pp. 419-422.

Tables of geographic positions, azimuths, and distances, together with list of barometric altitudes, magnetic declinations, and itineraries of important routes, etc.; by M. M. Macomb, U. S. Army. Washington, 1885.

These tables contain important data for map compilation and for reference. The altitudes of many mountains and towns of California are given in the tables, with reference to the maps of the survey.

Notes on mining districts in Nevada and California; by W. J. Hoffmann. Preliminary report of exploration in Nevada and Arizona; by Lieut. George M. Wheeler. Letter Sec. of War, 42d Cong., 2d sess., Ex. Doc. 65, pp. 39-42. Washington, 1872.

The Waucova district, California, by J. R. Simonton. Notes by W. J. Hoffmann on the antimoniates of lead and silver of Blind Spring district, California; also notes on the Oneata, Montgomery, and Deep Spring Valley districts. The Fish Spring, Kearsarge, San Carlos, Lone Pine, Coso, Granite Mountain, Telescope, Lyon, Death Valley, El Paso, and Amargosa mines, from notes by Lieut. D. A. Lyle and A. R. Marvin. The New York district, by Lieut. D. A. Lyle.

Report of 1877. Geological report on the portions of western Nevada and eastern California between the parallels 30 deg. 30 min. and 38 deg. 30 min.; by A. R. Conkling. Report of Chief of Engineers, 1877, Appendix H, pp. 1285-1295.

The area examined is bounded on the north by a line drawn through Truckee, Cal., and Washoe City, Nev.; on the east by the Mount Davidson range and the Como Mountains; on the south by Job's Peak and Pyramid Peak; and on the west by the Western summit and the Truckee River. Nearly all this region is covered by granites, with occasional outbursts of basaltic rocks. No fossils were found, except at Carson City, at the State Prison quarries.

U. S. GEOLOGICAL SURVEY OF THE 40TH PARALLEL.

CLARENCE KING, Director.

Microscopical petrography, U. S. geological exploration of the 40th parallel, Clarence King, geologist in charge. Vol. 6, by Ferdinand Zirkel. 297 pp., 12 pl. Washington, 1876.

U. S. GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

F. V. HAYDEN, U. S. Geologist, in charge.

Twelfth Annual Report of the U. S. Geological and Geographical Survey of the Territories. A report of progress of the exploration in Wyoming and Idaho for the year 1878. In two parts. Part I. Washington, 1883.

On page 132, Dr. White describes *Productus giganteus*, Martin, from McCloud River, Shasta County, California.

Contributions to the fossil flora of the western Territories, vol. 8, Part III. The Cretaceous and Tertiary flora; by Leo Lesquereux. xii, 283 pp., 59 pl. Washington, 1883.

Equisetum species; *Sequoia angustifolia*, Lx.; *Taxites oriki*, Heer; *Geonomiles Schimperi*, Lx.; *Alnus corrallina*, Lx.; *Quercus olafseni*, Heer; *Castanca Ungeri*, Heer; *Salix varians*, Goepp; *S. integra?*, Goepp; *Populus balsamoides*, Goepp; *Platanus dissecta*, Lx.; *Ficus asiminaefolia*, Lx.; *Laurus princeps*, Heer; *L. grandis*, Lx.; *L. salicifolia*, Lx.; *L. Californica*, n.sp.; *Cinnamonum affine*, Lx.; *Myrtus Oregonensis*, Lx.; *Quercus convexa*, Lx.; *Ulmus Californica*, Lx.; *Aralia acerofolia*, Lx.; *Aralia zaddachi?*, Heer; *Cerocarpus antiquus*, Lx.

UNITED STATES GEOLOGICAL SURVEY.

ANNUAL REPORTS.

First Annual Report of the United States Geological Survey; by Clarence King. 1880. 79 pp., 1 map.

A preliminary report describing plan of organization and publications.

Reconnoissance of the San Francisco, Eureka, and Bodie districts; by George F. Becker. pp. 37-47.

Fifth Annual Report of the United States Geological Survey, 1883-84; by J. W. Powell. 1885. xxxvi, 469 pp., 58 pl. and maps.

Existing glaciers of the United States; by Israel C. Russell. pp. 303-355, pl. 42-44.

Sixth Annual Report of the United States Geological Survey, 1884-85; by J. W. Powell. 1885. xxix, 570 pp., 65 pl. and maps.

Administrative report; by George F. Becker. pp. 67-70. The author discusses the age and time of uplift of the Coast Range formations and the equivalency of different *Aucella*-bearing beds.

Division of Mesozoic Invertebrates; by Charles A. White. pp. 72-74. The author states his conclusions in regard to the Chico and Tejon groups, and the auriferous slate series of California. He gives the name of *Wallala* group to a Cretaceous formation in Mendocino County.

Seventh Annual Report of the United States Geological Survey, 1885-86; by J. W. Powell. 1888. xx, 656 pp., 71 pl. and maps.

Report on California division of geology; by George F. Becker. pp. 93-97. References to the diabase pebbles, etc., at Steamboat Springs, Nev.; the relations of the early and the late Cretaceous of the Coast Ranges; the identity of the older strata of the Coast Ranges with the fossiliferous rocks at the southern end of the gold belt in the Sierra Nevada, and the age and history of the Chico and Tejon series, etc.

Report of Capt. C. E. Dutton. pp. 97-102.

Obsidian cliff, Yellowstone National Park; by Joseph P. Iddings. pp. 248-295, pl. 9-18.

Eighth Annual Report of the United States Geological Survey, 1886-87; by J. W. Powell. 1889. 2 pt. xix, 474, xii pp., 53 pl. and maps; 1 pl., 475-1063 pp., 54-76 pl. and maps.

Quaternary history of Mono Valley, California; by Israel C. Russell. pp. 261-394, 24 pl. and 5 maps.

Geology of Lassen Peak district; by J. S. Diller. pp. 395-432, 7 pl. This report contains an account of the geologic formations in the Lassen Peak district; auriferous slates series; carboniferous limestone; serpentine; age of the auriferous slate district. Cretaceous—Chico beds, composition, distribution, age of the fossils, upper and lower limits. Miocene—Composition of the Miocene strata, distribution and relations, fossils found in the Miocene strata, hypsographic and climatic conditions during the Miocene. Pliocene—Upheaval of the Piedmont region, structure of the Sierras, etc.

Summary of the quicksilver deposits of the Pacific Slope; by George F. Becker. pp. 961-985, 3 pl. (For list of contents, see Monograph XIII.)

Tenth Annual Report of the United States Geological Survey, 1888-89; by J. W. Powell. 1890. 2 pt. xv, 774 pp., 98 pl. and maps; viii, 123 pp.

Administrative report; by George F. Becker. pp. 141-144.

Fourteenth Annual Report of the United States Geological Survey, 1892-93; by J. W. Powell. 1893. 2 pt. vi, 321 pp., 1 pl; xx, 597 pp., 74 pl.

The rocks of the Sierra Nevada; by H. W. Turner. Washington, 1895. Part II, pp. 441-495, pl. 48-59.

The gold-silver veins of Ophir, California; by Waldemar Lindgren. Part II, pp. 249-284.

Tertiary revolution in the topography of the Pacific Coast; by J. S. Diller. Part II, pp. 403-433.

Fifteenth Annual Report of the United States Geological Survey, 1893-94; by J. W. Powell. 1895. xiv, 755 pp., 48 pl.

Sketch of the geology of the San Francisco peninsula; by Andrew C. Lawson. pp. 399-476, pl. 5-12.

Sixteenth Annual Report of the United States Geological Survey, 1894-95; Charles D. Walcott, Director. 1895. (Part I, 1896.) 4 pt. xxii, 910 pp., 117 pl. and maps; xix, 598 pp., 43 pl. and maps; xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl.

Parts III and IV contain reports on mineral resources. Part IV contains reports on the production of coal in 1894, by E. W. Parker, pp. 1-217; Petroleum, by Joseph D. Weeks, pp. 315-404; Asphal-

Sixteenth Annual Report. (*Continued.*)

tum, by E. W. Parker, pp. 430-435; Stone, by William C. Day, pp. 436-510; with reports on other minerals.

Notes on the occurrence of diamonds in California quartz, gems of California, etc.; by G. F. Kunz. pp. 595-605.

Seventeenth Annual Report of the United States Geological Survey, 1895-96; Charles D. Walcott, Director. 1896. 3 pt. in 4 vol. xxii, 1076 pp., 67 pl. and maps; xxv, 864 pp., 113 pl. and maps; xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl.

Further contributions to the geology of the Sierra Nevada; by H. W. Turner. Part I, pp. 521-762, pl. 17-47.

The faunal relations of the Eocene and Upper Cretaceous of the Pacific Coast; by T. W. Stanton. Part I, pp. 1005-1060, pl. 63-67. The author figures *Flabellum Remondianum, Terebratulina Tejonensis, Plicatula ostreiformis, Lima multiradiata, Cucullaea Mathewsoni, Pectunculus Veatchi,* also var. *major, Leda alaeformis, L. Gabbi, Crassatella unioides, Lucina Turneri, Meretrix* sp., *Tellina Hornii, Turritella Pachecoensis, T. infragranulata, Lunatia Hornii, Perissolax Blakei, Strepsidura Pachecoensis, Heteroterma striata* n.sp., *H. Gabbi* n.sp., *Siphonalia? lineata* n.sp., *Urosyca caudata, Brachysphingus liratus,* Gabb.

Part III. Mineral resources of the United States; by David T. Day.

Eighteenth Annual Report of the United States Geological Survey, 1896-97; by Charles D. Walcott, Director. 1897. (Parts II and III, 1898.) 5 pt. in 6 vol. 440 pp., 4 pl. and maps; v, 653 pp., 105 pl. and maps; v, 861 pp., 118 pl. and maps; x, 756 pp., 102 pl. and maps; xii, 642 pp., 1 pl.; 643-1400 pp.

Part II. A table of the North American horizons, correlated with one another and with those of western Europe; by William H. Dall. pp. 327-348.

Part III. A geological sketch of San Clemente Island; by W. S. T. Smith. pp. 459-496, pl. 74-96.

Part V. Mineral resources of the United States, 1896; by David T. Day.

Nineteenth Annual Report of the United States Geological Survey, 1897-98; by Charles D. Walcott, Director. 1898. (Parts II, III, and V, 1899.) 6 pt. in 7 vol. 422 pp., 2 maps; v, 958 pp., 172 pl. and maps; v, 785 pp., 99 pl. and maps; viii, 814 pp., 118 pl. and maps; xvii, 400 pp., 110 pl. and maps; viii, 651 pp., 11 pl.; viii, 706 pp.

Part VI. Mineral resources of the United States, 1897; by David T. Day.

Twentieth Annual Report of the United States Geological Survey, 1898-99; by Charles D. Walcott, Director. 1899. (Parts II, III, IV, V, and VII, 1900.) 7 pt. in 8 vol. 551 pp., 2 maps; v, 953 pp., 193 pl. and maps; v, 595 pp., 78 pl. and maps; vii, 660 pp., 75 pl. and maps; xix, 498 pp., 159 pl. and maps; viii, 616 pp.; xi, 804 pp., 1 pl.; v, 509 pp., 38 pl. and maps.

Part II. Status of the Mesozoic floras of the United States; by L. F. Ward, with the collaboration of William M. Fountain, Atreus Wanner, and F. H. Knowlton. pp. 211-748, pl. 21-179.

Part IV. Mineral resources of the United States, 1898; by David T. Day.

Twenty-first Annual Report of the United States Geological Survey, 1899-1900; by Charles D. Walcott, Director. 1900. 7 pt. in 8 vol.

Part VI. Mineral resources of the United States, 1899; by David T. Day.

Twenty-second Annual Report of the United States Geological Survey.

Part I. The asphalt and bituminous rock deposits of the United States; by George H. Eldridge. pp. 219-452, pl. 25-58.

Part III. The coal fields of the United States; by C. W. Hayes. pp. 7-24, pl. 1.

Part III. The Pacific Coast coal fields; by G. O. Smith. pp. 473-515, pl. 31-34.

MONOGRAPHS.

Monographs, vol. XIII. Geology of the quicksilver deposits of the Pacific Slope, with atlas; by George F. Becker. Washington, 1888. xix and 486 pp. 7 plates, with atlas of 14 sheets.

The general heading of the chapters of this work are as follows:

Chapter I. Statistics and history.
II. Notes on foreign occurrence of quicksilver.
III. Sedimentary rocks.
IV. The massive rocks.
V. Structural and historical geology of the quicksilver belt.
Appendix to Chapter V, Remarks on the genus *Aucella*, with special reference to its occurrence in California, by C. A. White.
VI. Descriptive geology of the Clear Lake region.
VII. Descriptive geology of Sulphur Bank.
VIII. Descriptive geology of the Knoxville district.
IX. Descriptive geology of the New Idria district.

Monographs, vol. XIII. (*Continued.*)

Chapter X. Descriptive geology of the New Almaden district.
XI. Descriptive geology of the Steamboat Springs district.
XII. Descriptive geology of the Oathill, Great Western, and Eastern districts.
XIII. Other deposits of the Pacific Coast.
XIV. Discussion of the ore deposits.
XV. On the solution and precipitation of cinnabar and other ores.
XVI. The origin of the ore.
XVII. Summary of results.

The report contains geological maps of the Oathill, Great Western, and Eastern districts; geological map of the Mayacmas range, with figures of foreign and American species of the genus *Aucella*.

BULLETINS.

Mapoteca Geologica Americana. A catalogue of geological maps of North America and South America, 1752-1881, in geographic and chronological order; by Jules Marcou and John B. Marcou. Bulletin No. 7. 1884. 184 pp.

On the Quaternary and Recent Mollusca of the Great Basin, with descriptions of new forms; by R. Ellsworth Call. Introduced by a sketch of the Quaternary lakes of the Great Basin, by G. K. Gilbert. Bulletin No. 11. 1884. 66 pp., 6 pl.

Boundaries of the United States and of the several States and Territories, with a historical sketch of the territorial changes; by Henry Gannett. Bulletin No. 13. 1885. 135 pp.

On the Mesozoic and Cenozoic palæontology of California; by C. A. White. Bulletin No. 15. 1885. 33 pp.

This report contains general remarks on the geology of the coast; the Shasta group; relations of the fauna of the auriferous slates to that of the Shasta group; the geological age of the *Aucella*-bearing strata of California; remarks on certain Californian fossils which have been identified with Eastern species; etc., etc. The classification of the California Cretaceous is as follows:

Lower Cretaceous—Shasta Group: Knoxville beds, Shasta beds.
Upper Cretaceous—Wallala beds, Chico.

Notes on the stratigraphy of California; by George F. Becker. Bulletin No. 19. 1885. 28 pp.

This report treats of the metamorphic rocks of the Coast Ranges; the non-conformity between the Knoxville beds and the Chico; identity of the Mariposa and Knoxville beds; relation of the Cascades to the Sierra and the Coast Ranges of California; Mesozoic beds; Palæozoic rocks of California; etc.

On new Cretaceous fossils from California; by C. A. White. Bulletin No. 22. 1885. 25 pp., 5 pl.

The following species are described in this bulletin: *Coralliochama*, n.gen; *C. Orcutti; Trochus* (*Oxystele*) *euryostomus; Nerita*, sp.?; *Cerithium Pillingi; C. totium; Sanctorum; Solarium Wallalensis.*

Notes on the geology of northern California; by J. S. Diller. Bulletin No. 33. 1886. 23 pp.

This bulletin contains articles on the character and distribution of the Carboniferous limestones; structure of the Sierra Nevada range; age of the faulting of the Sierra Nevada range; age of the auriferous slates; general distribution of the metamorphic, volcanic, and Cretaceous rocks; relations of the Sierra, Coast, and Cascade ranges.

On invertebrate fossils from the Pacific Coast; by Charles A. White. Bulletin No. 51. 1889. pp. 433-532, pl. 1-14. (Abstract Am. Geologist, vol. 5, 1890, pp. 109-110.)

This paper contains: 1. New fossil mollusca from the Chico-Tejon series of California; 2. Equivalents of the Chico-Tejon series in Oregon and Washington; 3. Cretaceous fossils from Vancouver Island region; 4. Molluscan fauna of the Puget group; 5. Mesozoic mollusca from the southern coast of the Alaskan peninsula.

Report of work done in the Division of Chemistry and Physics, mainly during the fiscal year 1886-87; by F. W. Clarke. Bulletin No. 55. 1889. 96 pp.

Report of work done in the Division of Chemistry and Physics, mainly during the fiscal year 1887-88; by F. W. Clarke. Bulletin No. 60. 1890. 174 pp.

Report of work done in the Division of Chemistry and Physics, mainly during the fiscal year 1888-89; by F. W. Clarke, Chief Chemist. Bulletin No. 64. 1890. 60 pp.

The earthquakes in California; by James E. Keeler. Bulletin No. 68. 1890. 25 pp.

Dictionary of altitudes in the United States (second edition); compiled by Henry Gannett. Bulletin No. 76. 1891. 393 pp.

——— Third edition. Bulletin No. 160. 1899.

A report of work done in the Division of Chemistry and Physics, mainly during the fiscal year 1889-90; by F. W. Clarke, Chief Chemist. Bulletin No. 78. 1891. 131 pp.

A late volcanic eruption in northern California, and its peculiar lava; by J. S. Diller. Bulletin No. 79. 1891. 33 pp., 17 pl.

Correlation Papers: Cretaceous; by Charles A. White. Bulletin No. 82. 1891. 273 pp., 3 pl.

Correlation Papers: Eocene; by W. B. Clark. Bulletin No. 83. 1891. 173 pp., 2 pl.

Correlation Papers: Neocene; by W. H. Dall and G. D. Harris. Bulletin No. 84. 1892. 349 pp., 3 pl.

Earthquakes in California in 1890-91; by E. S. Holden. Bulletin No. 95. 1892.

Earthquakes in California in 1892; by Charles D. Perrine. Bulletin No. 112. 1893.

Earthquakes in California in 1893; by Charles D. Perrine. Bulletin No. 114. 1894.

Earthquakes in California in 1894; by Charles D. Perrine. Bulletin No. 129. 1895.

Contributions to the Cretaceous palæontology of the Pacific Coast. The fauna of the Knoxville beds; by Timothy W. Stanton. Bulletin No. 133. 1895. 85 pp., 20 pl.

This bulletin contains a definition of the Knoxville beds, geographic distribution, local developments in Tehama, Colusa, Lake, and Napa counties, Mount Diablo, and other localities southward, etc., with descriptions of the following species:

BRACHIOPODA—*Rhynchonella Schucherti*, n.sp.; *R. Whitneyi*, Gabb; *Terebratella Californica*, n.sp.; *Terebratula*, sp.?

Contributions, etc. (*Continued.*)

MOLLUSCA—*Ostrea*, sp.; *Anomia senescens*, n.sp.; *Spondylus fragilis*, n.sp.; *Lima multilineata*, n.sp.; *Pecten Californicus*, Gabb?; *P. complexicosta*, Gabb; *Avicula* (*Oxytoma*) *Whitcavesi*, n.sp.; *Aucella Piochi*, Gabb; *A. crassicollis*, Keyserl; *Inoceramus ovatus*, n.sp.; *Modiola major*, Gabb; *Myoconcha Americana*, n.sp.; *Pinna*, sp.?; *Arca Tchamaensis*, n.sp.; *A. textrina*, n.sp.; *Pectunculus? ovatus*, n.sp.; *Nucula Gabbi*, n.sp.; *N. Storrsi*, n.sp.; *Leda glabra*, n.sp.; *Cardiniopsis*, n.gen.; *C. unioides*, n.sp.; *Solemya occidentalis*, n.sp.; *Astarte corrugata*, n.sp.; *A. Californica*, n.sp.; *A. trapezoidalis*, n.sp.; *Opis Californica*, n.sp.; *Lucina ovalis*, n.sp.; *L. Colusaensis*, n.sp.; *Cyprina occidentalis*, Whiteaves; *Solecurtus? dubius*, n.sp.; *Corbula? persulcata*, n.sp.; *C. filosa*, n.sp.; *Dentalium Californicum*, n.sp.; *Helcion granulatus*, n.sp.; *Fissurella bipunctata*, n.sp.; *Pleurotomaria*, sp.?; *Turbo Paskentaensis*, n.sp.; *T. Wilburensis*, n.sp.; *T. trilineatus*, n.sp.; *T. Colusaensis*, n.sp.; *T. Morganensis*, n.sp.; *T.? humerosus*, n.sp.; *Amberleya Dilleri*, n.sp.; *Atresius liratus*, Gabb; *Turritella*, sp.?; *Hypsipleura? occidentalis*, n.sp.; *H. gregaria*, n.sp.; *Cerithium Paskentaensis*, n.sp.; *C. strigosum*, n.sp.; *C.*, sp.? *Aporrhais*, sp.; *Phylloceras Knoxvillensis*, n.sp.; *Lytoceras Batesi*, Trask; *Desmoceras Californicum*, n.sp.; *Olcostephanus* (*Simbirskites*) *mutabilis*, n.sp.; *O.* (*Polyptychites*) *trichotomus*, n.sp.; *Hoplites Hyatti*, n.sp.; *H. Storrsi*, n.sp.; *H. angulatus*, n.sp.; *H. crassiplicatus*, n.sp.; *H. Dilleri*, n.sp.; *Perisphinctes*, sp.; *Diptychoceras?*, sp.; *Crioceras latus*, Gabb; *Aptychus? Knoxvillensis*, n.sp.; *Belemnites impressus*, Gabb; *B. Tehamaensis*, n.sp.; *Belemnites*, sp.

Earthquakes in California in 1895; by Charles D. Perrine. Bulletin No. 147. 1896. 23 pp.

Earthquakes in California in 1898; by Charles D. Perrine. Bulletin No. 161. 1899. 31 pp., 1 pl.

Topographic developments of the Klamath Mountains; by J. S. Diller. Bulletin No. 196. 1902. 69 pp., 13 pl.

Reconnoissance of the borax deposits of Death Valley and Mojave Desert; by M. R. Campbell. Bulletin No. 200. 1902.

Copper deposits, limestones, and iron ores of the Redding district, California; by J. S. Diller. Bulletin No. 213, ser. A. 1902.

Origin and distribution of asphalt and bituminous rock deposits in the United States; by George H. Eldridge. Bulletin No. 213, ser. A. 1902. pp. 296-306.

The petroleum field of California; by George H. Eldridge. Bulletin No. 213. 1902. pp. 306-322.

Coal fields of the United States; by C. W. Hayes. Bulletin No. 213. 1902. pp. 257-270.

WATER-SUPPLY AND IRRIGATION PAPERS.

1. Pumping water for irrigation; by Herbert M. Wilson. 1896. 57 pp., 9 pl.

17. Irrigation near Bakersfield, California; by C. E. Grunsky. 1898. 96 pp., 16 pl.

18. Irrigation near Fresno, California; by C. E. Grunsky. 1898. 94 pp., 14 pl.

19. Irrigation near Merced, California; by C. E. Grunsky. 1899. 59 pp., 11 pl.

45. Water storage on Cache Creek, California; by A. E. Chandler.

46. Physical characteristics of Kern River, California, by F. H. Olmsted; and Reconnoissance of Yuba River, California, by M. Manson.

STATISTICAL PAPERS.

Mineral resources of the United States, 1882; by Albert Williams, Jr. 1883. xvii, 813 pp.

Contains: Iron on the Pacific Coast, p. 148; Quicksilver, pp. 387-398; Clays of the Pacific Coast, p. 475; with reports on borax, coal, copper, iron, lead, nickel, salt, tin, and other minerals.

Mineral resources of the United States, 1883 and 1884; by Albert Williams, Jr. 1885. xiv, 1016 pp.

Contains: Report on coal fields of United States, pp. 11-213; Iron on the Pacific Coast, by Charles G. Yale, pp. 286-290; Quicksilver reduction at New Almaden, by S. B. Christy, pp. 503-534; The asphaltum deposits of California, by E. W. Hilgard, pp. 938-948; with reports on other minerals.

Mineral resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. vii, 576 pp.

Contains: Reports on coal of California, pp. 15-16; Petroleum, pp. 148-152; Iron on the Pacific Coast, by Charles G. Yale, pp. 196-199; Quicksilver, pp. 284-296; with reports on other minerals.

Mineral resources of the United States, 1886; by David T. Day. 1887. viii, 813 pp.

Contains: Quicksilver, pp. 160-168; with reports on other minerals.

Mineral resources of the United States, 1887; by David T. Day. 1888. vii, 832 pp.

Contains: Quicksilver, pp. 118-125; with reports on other minerals.

Mineral resources of the United States, 1888; by David T. Day. 1890. vii, 632 pp.

Contains: Iron ores of Rocky Mountain division, by F. F. Chisolm, pp. 35-39; Quicksilver, pp. 97-107; with reports on other minerals.

Mineral resources of the United States, 1889 and 1890; by David T. Day. 1892. viii, 671 pp.

Contains: Quicksilver, pp. 94-109; Petroleum, by Joseph D. Weeks, pp. 287-365; Borax, by Charles G. Yale, pp. 494-506; with reports on other minerals.

Mineral resources of the United States, 1891; by David T. Day. 1893. vii, 630 pp.

Contains: Quicksilver, pp. 117-125; with reports on other minerals.

Mineral resources of the United States, 1892; by David T. Day. 1893. vii, 850 pp.

Contains: Quicksilver ore deposits, by George F. Becker, pp. 139-168; with reports on other minerals.

Mineral resources of the United States, 1893; by David T. Day. 1894. viii, 810 pp.

Contains: Quicksilver, pp. 111-118; with reports on other minerals.

Mineral resources of the United States, 1894; by David T. Day. 1895. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral resources of the United States, 1895; by David T. Day. 1896. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral resources of the United States, 1896; by David T. Day. 1897. xii, 642 pp., 1 pl., 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

Mineral resources of the United States, 1897; by David T. Day. 1898. viii, 651 pp., 11 pl.; viii, 706 pp. Being Part VI (in 2 vols.) of the Nineteenth Annual Report.

Mineral resources of the United States, 1898; by David T. Day. 1899. viii, 616 pp.; ix, 804 pp., 1 pl. Being Part VI (in 2 vols.) of the Twentieth Annual Report.

Mineral resources of the United States, 1899; by David T. Day. 1901. viii, 656 pp.; viii, 634 pp. Being Part VI (in 2 vols.) of the Twenty-first Annual Report.

MAPS AND ATLASES.

Topographic map of the United States.

The map is published in atlas sheets, each sheet representing a small quadrangular district. The mapped areas are widely scattered, nearly every State being represented. About 1,100 sheets have been engraved and printed. The maps of California are catalogued in Part VI of this Bibliography.

The map sheets represent a great variety of topographic features, and with the aid of descriptive text they can be used to illustrate topographic forms. The first three folios have been issued, viz.:

1. Physiographic types, by Henry Gannett. 1898. Folio. Four pages of descriptive text and the following topographic sheets: Fargo (N. Dak.-Minn.), a region in youth; Charleston (W. Va.), a region in maturity; Caldwell (Kans.), a region in old age; Palmyra (Va.), a rejuvenated region; Mount Shasta (Cal.), a young volcanic mountain; Eagle (Wis.), moraines; Sun Prairie (Wis.), drumlins; Donaldsonville (La.), river flood plains; Boothbay (Me.), a fiord coast; Atlantic City (N. J.), a barrier-beach coast.

2. Physiographic types, by Henry Gannett. 1900. Folio. Eleven pages of descriptive text and the following topographic sheets; Norfolk (Va.-N. C.), a coast swamp; Marshall (Mo.), a graded river; Lexington (Neb.), an overloaded stream; Harrisburg (Pa.), Appalachian ridges; Poteau Mountain (Ark.-Ind. T.), Ozark ridges; Marshall (Ark.), Ozark plateau; West Denver (Colo.), hogbacks; Mount Taylor (N. Mex.), volcanic peaks, plateaus, and necks; Cucamonga (Cal.), alluvial cones; Crater Lake special (Ore.), a crater.

Topographic map of the United States. (*Continued.*)

3. Physical geography of the Texas region, by Robert T. Hill. 1900. Folio. Twelve pages of text (including 11 cuts); 5 sheets of special half-tone illustrations; 5 topographic sheets, one showing types of mountains, three showing types of plains and scarps, and one showing types of rivers and canyons; and a new map of Texas and parts of adjoining territories.

Geologic atlas of the United States.

The Geologic Atlas of the United States is the final form of publication of the topographic and geologic maps. The atlas is issued in parts. Under the plan adopted the entire area of the country is divided into small rectangular districts (designated *quadrangles*), bounded by certain meridians and parallels. Each folio contains topographic, geologic, economic, and structural maps, together with textual descriptions and explanations, and is designated by the name of a principal town or of a prominent natural feature within the district.

SMITHSONIAN INSTITUTE.

Illustration of surface geology; by Edward Hitchcock. Smithsonian Institute Contributions, vol. 9, 1857, 155 pp., 12 pl. Separate as No. 90.

The author, under erosions of the earth's surface, cites that of the west side of the Sierra Nevada Mountains in California, pp. 107-108. There is a second edition of this work published at Amherst, 1860.

Geological progress for 1882; by T. Sterry Hunt. Smithsonian Report for 1882, pp. 325-345. Washington, 1883.

The collection of building and ornamental stones in the United States National Museum; by George P. Merrill. Smithsonian Report for 1886, Part II, pp. 277-648, pl. 1-9.

UNITED STATES NATIONAL MUSEUM.

Post Pliocene fossils in the Coast Range of California; by W. H. Dall. Proc. U. S. Natl. Mus., vol. 1, 1878, p. 3.

Specimens of *Donax Californicus*, *Chione succincta*, *Olivella biplicata*, and *Certhidea sacrata* in a semi-fossilized condition from San Luis Rey, Cal.

Fossil mollusca from later Tertiary of California; by W. H. Dall. Proc. U. S. Natl. Mus., vol. 1, 1878, pp. 10-16.

The author gives a table of one hundred and seven species, ten of which are extinct and ninety-seven still found recent, with a description of the following new species: *Axinea profunda, Pecten expansus, P. Stearnsi, P. Hemphilli, Anomia limatula, Socalaria Hemphilli.*

Distribution of Californian Tertiary fossils; by W. H. Dall. Proc. U. S. Natl. Mus., vol. 1, 1878, pp. 26-30.

The author notes those of the strata of the San Diego peninsula and those of the mainland, near the town of San Diego, etc.

Jurassic or Cretaceous beds appear to exist at Todos Santos Bay, Lower California, not far from San Diego.

Note on the occurrence of *Productus giganteus* in California; by C. A. White. Proc. U. S. Natl. Mus., vol. 3, 1880, pp. 46-47, pl. 1.

From the Carboniferous of McCloud River, Shasta County, California.

The onyx marbles; their origin, composition, and use, both ancient and modern; by George P. Merrill. Report U. S. Natl. Mus., 1893, pp. 539-585, pl. 1-18.

Notes their mode of occurrence in California.

Directions for collecting and preparing fossils; by Charles Schuchert. Bull. U. S. Natl. Mus., no. 39. Washington, 1895.

Contains California localities of fossils.

Notes on the geology and natural history of the peninsula of Lower California; by George P. Merrill. Report U. S. Natl. Mus., 1895, pp. 969-994, pl. 1-10.

Guide to the study of the collection in the section of applied geology: The non-metallic minerals; by George P. Merrill. Report U. S. Natl. Mus., 1899, pp. 155-483, with 30 pl.

Description of a species of Actæon from the Quaternary bluffs of Spanish Bight, San Diego, California; by R. E. C. Stearns. Proc. U. S. Natl. Mus., vol. 21, pp. 297-299. 1899.

A flightless auk (*Mancalla Californiensis*) from the Miocene of California; by Frederic A. Lucas. Proc. U. S. Natl. Mus., vol. 24, 1901, pp. 133-134, 3 pl.

PART III.

PUBLICATIONS OF SCIENTIFIC SOCIETIES.

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ALBANY INSTITUTE.

Description of new organic remains from the Cretaceous rocks of Vancouver Island; by F. B. Meek. Trans. Albany Ins., vol. 4, 1857, pp. 37-39. See also Bull. U. S. Geol. Sur., vol. 2, no. 4, 1876.

Gabb, in the Palæontology of California, refers to the following species in this article: *Pholadomya subelongata*, Meek; *Ammonites (Scaphites?) ramosus*, Meek; *A. Newberryanus*, Meek; *Baculites ovatus*, Say?, for which Meek suggests the name of *B. occidentalis*.

AMERICAN ACADEMY OF ARTS AND SCIENCES.

On the composition of California petroleum; by Charles F. Mabery and Edward J. Hudson. Proc. Am. Acad. Arts and Sciences, vol. 36, 1901, pp. 255-283.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Published in Salem, Massachusetts.

Vol. 1, 1849—Vol. 51, 1902.

On the characters and probable geological age of the sandstone formation of San Francisco; by W. P. Blake. Proc. Am. Assoc. Adv. Sci., 9th meeting, August, 1855, pp. 220-222.

On the grooving and polishing of hard rocks and minerals by dry sand; by W. P. Blake. Proc. Am. Assoc. Adv. Sci., 9th meeting, August, 1855, pp. 216-220.

Remarks upon the geology of California from observations in connection with the U. S. survey and explorations for a railroad route to the Pacific; by W. P. Blake. Proc. Am. Assoc. Adv. Sci., 9th meeting, August, 1855, pp. 222-225.

The plasticity of pebbles and rocks; by William P. Blake. Proc. Am. Assoc. Adv. Sci., vol. 18, 1870, pp. 199-205.

Studies in the formation of mountains in the Sierra Nevada, California; by John Muir. Proc. Am. Assoc. Adv. Sci., 23d meeting, at Hartford, 1874, pp. 49-64.

The older rocks of western North America; by T. Sterry Hunt. Proc. Am. Assoc. Adv. Sci., vol. 26, 1878, pp. 265-266.

Address by Prof. Joseph Le Conte, the retiring president of the association. Theories of the origin of mountain ranges. Proc. Am. Assoc. Adv. Sci., 42d meeting, August, 1893.

The Carboniferous strata of Shasta County, California; by J. P. Smith. Proc. Am. Assoc. Adv. Sci., vol. 43, 1895, p. 247.

Supplementary notes on the metamorphic series of the Shasta region of California; by J. P. Smith. Proc. Am. Assoc. Adv. Sci., 44th meeting, August, 1896, pp. 137-138.

AMERICAN GEOLOGIST.

Published in Minneapolis, Minn.

Vol. 1, 1888—Vol. 31, 1903.

Flora of coast islands of California, in relation to recent changes of physical geography; by Joseph Le Conte. Am. Geol., vol. 1, 1888, pp. 76-81.

Lavas of northern California; by J. S. Diller. Am. Geol., vol. 1, 1888, pp. 125-126. (From Am. Jour. Sci., Jan., 1887, vol. 33, pp. 45-50.)

Describes beds of volcanic ash in place, inclosing the stumps of more or less decayed trees, the nature, origin, and occurrence of which are discussed at length.

Effects of pressure of a continental glacier; by A. Winchell. Am. Geol., vol. 1, 1888, pp. 139-143.

The views here enunciated were published in the University Argonaut, in March, 1886.

Post Pliocene Limnæid; by R. E. Call. Am. Geol., vol. 1, 1888, pp. 146-148.

Glacial action on flanks of higher Sierra Nevada. Am. Geol., vol. 3, 1889, pp. 340-341.

This is an editorial note of the glacial planing on Upper and Lower Sardine Lakes, near Young America mine.

Notes on the geology and scenery of the islands forming the southern line of the Santa Barbara Channel; by Dr. L. G. Yates. Am. Geol., vol. 5, 1890, pp. 43-52.

Geology of the Mother Lode gold belt; by Harold W. Fairbanks. Am. Geol., vol. 7, 1891, pp. 209-222.

Condensed from an article on the same subject published 10th Ann. Report State Mining Bureau of California.

The pre-Cretaceous age of the metamorphic rocks of the California Coast Range; by Harold W. Fairbanks. Am. Geol., vol. 9, 1892, pp. 153-166.

Notes on a further study of the pre-Cretaceous rocks of the California Coast Ranges; by Harold W. Fairbanks. Am. Geol., vol. 11, 1893, pp. 69-84.

Contains a map to illustrate the relations of the metamorphic and granitic rocks of the Coast Range to those of the Sierra Nevada.

Some recent contributions to the geology of California; by H. W. Turner. Am. Geol., vol. 11, 1893, pp. 307-324.

Uses the term Calaveras formation for certain Carboniferous beds.

Geological notes on the Sierra Nevada, Part I; by H. W. Turner. Am. Geol., vol. 13, 1894, pp. 228-249.

Geological notes on the Sierra Nevada, Part II; by H. W. Turner. Am. Geol., vol. 13, 1894, pp. 297-316.

Notes on some localities of Mesozoic and Palæozoic, in Shasta County, California; by H. W. Fairbanks. Am. Geol., vol. 14, 1894, pp. 25-31.

This report contains notes on the Trias of Squaw Creek, the Carboniferous of the McCloud River, and the Devonian of the Sacramento River, near Kennett Station.

Notes on the geology of the Coast Ranges of California; by H. W. Turner and T. W. Stanton. Am. Geol., vol. 14, 1894, pp. 92-98.

A contribution to the geology of the Coast Ranges; by Andrew C. Lawson. Am. Geol., vol. 15, 1895, pp. 342-356.

Auriferous gravels of the Sierra Nevada; by H. W. Turner. Am. Geol., vol. 15, 1895, pp. 371-379.

Report on a small collection of fossil plants from Poverty Hill and Monte Cristo mine on Spanish Peak, California, submitted by H. W. Turner; by F. H. Knowlton. Am. Geol., vol. 15, 1895, pp. 377-378.

The author cites the following fossils from the auriferous gravels: *Ficus soldida*, Lx.?; *Populus Zaddachi*, Heer?, and *Platanus appendiculata*, Lx.?, at Chalk Bluffs, Nevada County; also *Ficus Shastensis*, Lx.?, and *Persea Dilleri*, Lx.?, from the so-called Miocene of Shasta County.

Notes on the geology of eastern California; by Harold W. Fairbanks. Am. Geol., vol. 17, 1896, pp. 63-74.

These notes include a sketch of the country east of the Sierra Nevada, south of Mono Lake, and north of the Mojave Desert. It includes a stretch of country nearly 200 miles long and 75 miles wide.

The mineral deposits of eastern California; by Harold W. Fairbanks. Am. Geol., vol. 17, 1896, pp. 144-158.

This paper is based on examinations of mining districts north of San Bernardino and Alpine counties. The area is bordered on the west by the Sierra Nevada Mountains and is traversed in a general north and south direction by high mountains.

Notes on the formation of gold ore; by K. von Kraatz. Am. Geol., vol. 18, 1896, pp. 100-108.

Gives various theories as to the origin and deposition of gold bodies.

The gold quartz veins of California; by W. Lindgren. Am. Geol., vol. 17, 1896, pp. 338-339.

The age of the California Coast Ranges; by Harold W. Fairbanks. Am. Geol., vol. 18, 1896, pp. 271-282.

Stratigraphy at Slate's Spring, with further notes on the relation of the Golden Gate series to the Knoxville; by Harold W. Fairbanks. Am. Geol., vol. 18, 1896, pp. 350-356.

The age of the California Coast Ranges; by F. L. Ransome. Am. Geol., vol. 19, 1897, pp. 66-67.

Rules and misrules in stratigraphic classification; by Jules Marcou. Am. Geol., vol. 19, 1897, pp. 111-131.

The author refers the Chico-Tejon formation of California to the Eocene.

Hornblende basalt in northern California; by J. S. Diller. Am. Geol., vol. 19, 1897, pp. 253-255.

Oscillations of the coast of California during the Pliocene and Pleistocene; by Harold W. Fairbanks. Am. Geol., vol. 20, 1897, pp. 213-245.

The geology of Yosemite National Park; by H. W. Turner. Am. Geol., vol. 23, 1899, pp. 100-101; Science, new series, vol. 9, 1899, p. 106.

The occurrence and origin of diamonds in California; by H. W. Turner. Am. Geol., vol. 23, 1899, pp. 182-191; Mining and Scientific Press, vol. 78, 1899, pp. 586-613.

Origin and age of certain gold "pocket" deposits in northern California; by O. H. Hershey. Am. Geol., vol. 24, 1899, pp. 38-43.

The Sierra Madre near Pasadena; by E. W. Claypole. Am. Geol., vol. 27, 1901, p. 130.

Notes on petroleum in California; by E. W. Claypole. Am. Geol., vol. 27, 1901, pp. 150-160.

Metamorphic formations of northwestern California; by O. H. Hershey. Am. Geol., vol. 27, 1901, pp. 225-245.

The significance of the term Sierran; by Oscar H. Hershey. Am. Geol., vol. 29, 1902, pp. 88-95.

Some crystalline rocks of southern California; by Oscar H. Hershey. Am. Geol., vol. 29, 1902, pp. 273-290.

The different members of the crystalline rocks are discussed under the following heads: 1. Pelona schist series; 2. Gneiss series; 3. Rocks of Fraser Mountain and vicinity; 4. Mesozoic granites; 5. Ravenna Plutonic series; 6. Gneiss near Barstow; 7. Quartzite limestone series of Oro Grande; 8. Schists in Cajon Pass.

Some Tertiary formations of southern California; by Oscar H. Hershey. Am. Geol., vol. 29, 1902, pp. 349-372.

Some evidence of two glacial stages in the Klamath Mountains in California; by O. H. Hershey. Am. Geol., vol. 31, March, 1903, pp. 139-156.

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The late operations on the Mariposa estate; by C. M. Rolker. Trans. Am. Inst. Mining Eng., vol. 5, 1877, pp. 584-606, plates.

Hydraulic mining in California; by A. J. Bowie, Jr. Trans. Am. Inst. Mining Eng., vol. 6, 1878, p. 27.

Contains map of river tunnel on Mariposa estate.

Geology of American Valley. Trans. Am. Inst. Mining Eng., vol. 13, 1885, p. 217.

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The silver mines of Calico, California; by W. Lindgren. Trans. Am. Inst. Mining Eng., vol. 15, 1887, p. 717-734.

Description and sections of the region, and discussion of the lithological, stratigraphic, and structural features of the Tertiary sandstones, tuff deposits, liparite, and andesite, and their relations to the ore deposits.

Notes on certain water-worn vein specimens. Trans. Am. Inst. Mining Eng., vol. 25, 1896, pp. 514-518.

Glacial erosion and origin of the Yosemite Valley; by William P. Blake. Trans. Am. Inst. Mining Eng., 1899.

AMERICAN JOURNAL OF CONCHOLOGY.

Published in Philadelphia.

Vol. 1, 1865—Vol. 7, 1871.

Observations on certain Eocene fossils described as Cretaceous by Mr. W. M. Gabb in his report published in the Palæontology of California; by T. A. Conrad. Am. Jour. Conch., vol. 1, 1865, pp. 362-365.

The author remarks that Mr. Gabb makes two divisions of his Cretaceous strata, A and B. The former is, doubtless, Cretaceous; and the latter, I am sure, will prove to be older Eocene. *Fusus Californicus*, Gabb, the author does not recognize as "my? *Clavatula*

Observations, etc. (*Continued.*)

Californica." *Volutilithes Navarroensis* belongs to "my genus *Rostellites.*" *Fusus Remondi* is a species of *Perissolax* allied to *P. penita. Amauropsis alveata* is a species of *Globularia. Fiscus mamillatus* is probably *Sycotypus modestus*, Conrad. *Perissolax* is a genus nearly related to *Sycotypus. Chemnitzia Spillmani* is very distinct from any species I described under that name. *Aturia Mathewsoni* is *Aturia zic-zac. Dosinia elevata* is *Dosinoopsis alta. D. Uvasana* is *Dione ovata*, Rogers. *Meekia sella* is probably *Cyprina bisecta. M. navis* is a species of *Yoldia. Mactra Ashburneri* is probably *M. albaria*, Conrad. *Nucula truncata*—two species are evidently confounded under this name. *Leda protexta?* —there are two species here united, neither of which is the *protexta*—one Eocene, the other Cretaceous.

A reply to these criticisms of Mr. Conrad is given by Mr. W. M. Gabb in the second volume, pp. 87-92.

Reply to Mr. Conrad's criticism on Mr. Gabb's report on the Palæontology of California; by W. M. Gabb. Am. Jour. Conch., vol. 2, 1866, pp. 87-92.

Further observations on Mr. Gabb's Palæontology of California; by T. A. Conrad. Am. Jour. Conch., vol. 2, 1866, pp. 97-100.

The author remarks that *Volutilithes Navarroensis* has the external sculpture and form of a species of *Rostellites* found in New Jersey. *Perissolax*, Gabb, is limited to one species, but it is very different from *Busycon Blakei*, Conrad. *Hemifusus Horni*, *H. Cooperi*, and *H. Remondi*, *Gabb*, and *Fusus mamillatus*, Gabb, are members of my proposed genus *Ficopsis. Amauropsis alveata*, Gabb, is a member of Lamarck's genus *Ampullina. Venericardia Horni*, Gabb, is a very different variety from the *V. planicosta. Hamites Vancouverensis* I believe to be an *Ancyloceras. Ptycoceras acquicostatus* is more likely to be *Hamites. Neptunea curvirostris* I believe to represent an undescribed genus.

The controversy which, for a long time, was maintained between Conrad and Gabb as to the age of the Tejon rocks of California, referred by Conrad to the Eocene and by Gabb to represent the uppermost member of the Cretaceous (Division B of the California Reports), can be found in the following papers:

Conrad. Am. Jour. of Conchology, vol. 1 (1865), pp. 362-5; vol. 2 (1866), pp. 97-100; Am. Jour. Sci., vol. 44 (1867), pp. 376-7.

Gabb. Am. Jour. of Conchology, vol. 2 (1866), pp. 87-92; Am. Jour. Sci., vol. 44 (1867), pp. 266-9; Proc. Cal. Acad. Nat. Sciences, vol. 3 (1867), pp. 301-306.

Heilprin, in his article on the age of the Tejon rocks, etc. (Proc. Acad. Nat. Sci., Phila., 1882, p. 196), remarks, in a footnote, "that Conrad finally yielded his position, but he has been unable to discover the evidence of such a change of opinion in any of that author's writings."

Descriptions of some secondary fossils from the Pacific States; by W. M. Gabb. Am. Jour. Conch., vol. 5, 1870, pp. 5-18, pl. 3-7.

Orthoceras Blakei, Gabb; *Ammonites Nevadanus*, Gabb; *A. Colfaxi*, Gabb; *A. Billingsianus*, Gabb?; *Turbo regius*, Gabb?; *T. elevatus*, Gabb; *Pholadomya multilineata*, Gabb; *P. Nevadana*, Gabb; *Goniomya aperta*, Gabb; *Myacites depressus*, Meek; *Cardium arcaeformis*, Gabb; *Astarte appressa*, Gabb; *Cardinia ponderosa*, Gabb; *Posidonomya Blatchleyi*, Gabb; *Pinna*, sp.; *Crassianella lingulata*, Gabb; *Lima* (*Plagiostoma*), sp. undt.; *Monotis circularis*, Gabb; *Pecten acutiplicatus*, Meek; *Plicatula perembricata*, Gabb; *Spirifer obtusus*, Gabb.

The author publishes the opinion that all the Jurassic deposits of the Sierra Nevada and their vicinity were probably of Triassic age. (page 5.)

AMERICAN JOURNAL OF SCIENCE AND ARTS.

Published in New Haven, Connecticut.

1st series: Vol. 1, 1819—Vol. 50, 1845.
2d series: Vol. 1, 1846—Vol. 50, 1870.
3d series: Vol. 1, 1871—Vol. 50, 1896.
4th series: Vol. 1, 1897—Vol. 16, 1903.

California, elevation of, during the Tertiary epoch; by T. A. Conrad. Am. Jour. Sci., 1st ser., vol. 35, 1839, pp. 237-251.

In the author's article, "Notes on American Geology," in this journal, the author remarks: "On the coast of California Mr. Nuttall found shells of recent species two hundred feet above the sea. These are so much more remote from the axis of elevation than the Tertiary shells of New York that the uplift of the Rocky Mountains must have been far greater during the upper Tertiary period than was any part of the Atlantic chain."

On the areas of subsidence in the Pacific as indicated by the distribution of coral islands; by James D. Dana. Am. Jour. Sci., vol. 45, 1843, pp. 131-135. Map.

Fossil shells from the Tertiary deposits on the Columbia River, near Astoria; by T. A. Conrad. Am. Jour. Sci., 2d ser., vol. 5, 1848, pp. 432-433. 14 woodcuts.

The author describes and figures the following fossils, principally from cement-stone bowlders at Astoria, Oregon: *Nucula divaricata*, n.sp.; *N. cuneiformis*, n.sp.; *N. abrupta*, n.sp.; *Mactra albaria*, n.sp.; *Tellina Oregonensis*, n.sp.; *T. obruta*, n.sp.; *Loripes parilis*,

Fossil shells from Tertiary deposits, etc. (*Continued.*)

n.sp.; *Cytherea Oregonensis*, n.sp.; *C. vespertina*, n.sp.; *Nucula penita*, n.sp.; *Bullina petrosa*, n.sp.; *Pyrula modesta*, n.sp.; *Fusus Oregonensis*, n.sp.; *Solen curtus*, n.sp.

The following species were collected by the writer at Astoria, and sent to the American Museum at New York. As the list is unpublished, it may be well to include it as a note to Mr. Conrad's paper: *Nucula divaricata*, Con.; *N. impressa*, Con.; *Tellina albaria*, Con.; *Solemya ventricosa*, Con.; *Pecten propatulus*, Con.; *Area devincta*, Con.; *Venus bisecta*, Con.; *Pectunculus nitens*, Con.; *Venus angustifrons*, Con.; *Tellina emacerata*, Con.; *T. arctata*, Con.; *Lucina aculitmeata*, Con.; *Cardita sublenta*, Con.; *Terebratula nitens*, Con.; *Dolium petrosium*, Con.; *Rostellaria indurata*, Con.; *Fusus geniculus; Sigeretus* (*Lumatia*) *scopulosa; Teredo substriatus; A. dentalium; Naulitus angulatus*, Con. Besides these there are three or four species of bivalves and four of Gasteropods, undetermined, and one Brachiopod. These fossils were collected from the cement stones and argillaceous shales; all belong to one geological period, as the same species are found in each to some extent, though most are different.

Mines of cinnabar in Upper California; by C. S. Lyman. Am. Jour. Sci., 2d ser., vol. 6, 1848, pp. 270-271.

Gold in California. Am. Jour. Sci., 2d ser., vol. 7, 1848, pp. 125 and 262.

This is an early account of the discovery of gold on the American fork of the Sacramento River.

Notes on Upper California, by James D. Dana, from observations made during the cruise of the U. S. exploring expedition, under Capt. Charles Wilkes, U. S. N. Am. Jour. Sci., 2d ser., vol. 7, 1848, pp. 247-264.

Observations on California; by Rev. C. S. Lyman. Am. Jour. Sci., 2d ser., vol. 7, 1848, p. 291, also 305 and 309.

Platinum and diamonds in California. Am. Jour. Sci., 2d ser., vol. 8, 1848, p. 294.

California gold region; by Rev. C. S. Lyman. Am. Jour. Sci., 2d ser., vol. 8, 1849, pp. 415-419.

Gold of California; by Rev. C. S. Lyman. Am. Jour. Sci., 2d ser., vol. 9, 1849, pp. 126-127.

Observations on the Pluton geysers of California; by Forest Shepherd. Am. Jour. Sci., 2d ser., vol. 12, 1851, pp. 153-158.

On the Diluvial or Quaternary deposits in California; by James Blake. Am. Jour. Sci., 2d ser., vol. 13, 1852, pp. 385-391.

Notes on the Almaden mine, California; by T. S. Hart. Am. Jour. Sci., 2d ser., vol. 16, 1853, pp. 137-139.

Infusoria of California. Ehrenberg (Monatsb. d. k. Pr. Akad. Wiss., Berlin, Aug., 1852, p. 528) gives the list published in Am. Jour. Sci., 2d ser., vol. 16, 1853, p. 134.

Gives a list of infusoria from Shasta city and Sacramento River.

On some new localities of fossil Diatomaceæ in California and Oregon; by J. W. Bailey. Am. Jour. Sci., 2d ser., vol. 17, 1854, pp. 179-180.

Quicksilver mines of Almaden, California; by W. P. Blake. Am. Jour. Sci., 2d ser., vol. 17, 1854, pp. 438-440.

Recent earthquake shocks in California. Letter of W. P. Blake, in Am. Jour. Sci., 2d ser., vol. 18, 1854, p. 151.

Account of some volcanic springs in the Desert of the Colorado, in southern California; by John Le Conte. Am. Jour. Sci., 2d ser., vol. 19, 1855, pp. 1-6.

Observations on the extent of the gold regions of California and Oregon, with notices of mineral localities in California and some remarkable specimens of crystalline gold; by W. P. Blake. Am. Jour. Sci., 2d ser., vol. 20, 1855, pp. 72-85.

Also notes on platinum near Port Orford; quicksilver, Santa Clara County; copper, iron ores, etc.

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On the parallelism between the deposits of auriferous drift of the Appalachian gold field and those of California; by W. P. Blake. Am. Jour. Sci., 2d ser., vol. 26, 1858, p. 128.

Fossil plants of recent formations; by Leo Lesquereux. Am. Jour. Sci., 2d ser., vol. 27, 1859, pp. 359-363.

Notes on the New Almaden quicksilver mines; by B. Silliman, Jr. Am. Jour. Sci., 2d ser., vol. 38, 1864, pp. 190-194.

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Found 180 feet below the surface of Table Mountain.

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On the auriferous gravel deposits of Gold Bluff; by A. W. Chase. Am. Jour. Sci., 3d ser., vol. 7, 1874, pp. 379-384.

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2. Liparite, or porphyritic rhyolite.
3. Rhyolite proper, or lithoidic and hyaline rhyolite.

Natural system of volcanic rocks. (*Continued.*)

Order Second: Trachyte—
Family 1. Sanidin trachyte.
2. Oligoclase trachyte.
Order Third: Propylite—
Family 1. Quartzose propylite.
2. Hornblendic propylite.
3. Augitic propylite.
Order Fourth: Andesite—
Family 1. Hornblendic andesite.
2. Augitic andesite.
Order Fifth: Basalt—
Family 1. Dolerite.
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Note sur le geologie de la Californie; par Jules Marcou. Bull. Soc. Geol. of France, 1883, pp. 407-435; with geological map of California.

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The geology of Mount Diablo, California; by H. W. Turner. With a supplement on the chemistry of the Mount Diablo rocks; by W. H. Melville. Bull. Geol. Soc. of America, vol. 2, pp. 383-414, pl. 15. March 30, 1891.

The Knoxville beds, Chico beds, Tejon beds, Miocene beds, Pliocene beds, Post Pliocene beds, etc.

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Stratigraphy and succession of the rocks of the Sierra Nevada of California; by James E. Mills. Bull. Geol. Soc. of America, vol. 3, pp. 413-444, pl. 13. August 8, 1892.

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The fauna of the Shasta and Chico formations; by T. W. Stanton. Bull. Geol. Soc. of America, vol. 4, pp. 245-266. June 8, 1893.

Two Neocene rivers of California; by W. Lindgren. Bull. Geol. Soc. of America, vol. 4, pp. 257-298, pl. 5-9. June 19, 1893.

Age of the auriferous slates of the Sierra Nevada; by James P. Smith. Bull. Geol. Soc. of America, vol. 5, pp. 243-258. February 27, 1894.

Conclusions that the auriferous slates consist of Silurian, Carboniferous, Triassic, and Jurassic strata. The Mariposa slates are Upper Jurassic.

Trias and Jura in the Western States; by Alpheus Hyatt. Bull. Geol. Soc. of America, vol. 5, 1894, pp. 395-434.

The author places the relative age of the rocks of California, in different localities, as follows:

Trias—American and Sailor canyons.

Lower Jura—Inyo County, Cal.; Taylorville, Cal.

Middle Jura—Taylorville, Cal.

Upper Jura—Taylorville, Cal.; Mariposa Basin, Cal.; Colfax Basin, Cal.

The following new species of fossils are described, but not figured:

From American Canyon: *Monotis semplicata; M. symmetrica.*

From Sailor Canyon: *Daonella? subjecta; D. bochiformis; D. cardinoides; Hemientolium?* sp.?; *Panopea?* sp.?; *Entolium* sp.?; *Gryphaea* sp.?

Upper Jura fossils of the gold belt slates: *Cardioceras dubium*, Texas Ranch, Calaveras County; *Perisphinctes virgulatiformis*, near Reynolds Ferry; *Perisphinctes* sp.?, the same; *P. filiplex?*, Quenstedt, Tuolumne River, etc.; *P. Colfaxi*, Gabb, one mile west of Colfax; *P. Muhlbachi*, El Dorado County; *Olcostephanus Lindgreni*, near Colfax; *Oecotraustes denticulata*, Stanislaus River; *Belemnites Pacificus*, Gabb, Mariposa County, American Canyon; *Avicula* sp.?, Stanislaus River; *Amusium aurarium*, Meek, six miles from Copperopolis; *Aucella Erringtoni*, Meek, var. *arcuata*, Tuolumne River, etc.; *A. elongata*, Stanislaus River; var. *A. elongata orbicularis*, *A. aviculaeformis*, near Reynolds Ferry; var. *acuta*, six miles from Copperopolis; *A. orbicularis*, Calaveras County.

The Shasta-Chico series; by J. S. Diller and T. W. Stanton. Bull. Geol. Soc. of America, vol. 5, pp. 435-464. April 12, 1894.

The authors give the following conclusions: That the discovery of *Coralliochama Orcutti*, in the basal portion of the Chico beds, in the Sacramento Valley, demonstrates that the Wallala beds are only a phase of the Chico. The Shasta-Chico series is composed of the Knoxville, Horsetown, and Chico beds, which are each characterized by its own fauna. The fauna of adjacent beds, however, are so bound together by many common species that there is no palæontologic break. The Mariposa and Knoxville beds are faunally distinct and unconformable; the former Jurassic, and the latter Cretaceous.

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Characteristic features of California gold-quartz veins; by W. Lindgren. Bull. Geol. Soc. of America, vol. 6, pp. 221-240, pl. 11. March 5, 1895.

The gold-quartz veins are fissure veins, largely filled by silica predominate in the Metamorphic series; the granitic areas are nearly barren.

Earth crust movements and their causes; by Joseph Le Conte. Bull. Geol. Soc. of America, vol. 8, 1897, pp. 113-126; also, Science, new series, vol. 1, 1897, pp. 321-330.

Ground sloths in California Quaternary; by John C. Merriam. Bull. Geol. Soc. of America, vol. 11, 1900, pp. 612-614.

Origin and structure of basin ranges; by J. E. Spurr. Bull. Geol. Soc. of America, vol. 12, 1901, p. 217.

Ranges of California adjacent to southern Nevada, White Mountain, Grapevine, Funeral, and Kingston ranges; also Mojave desert. Map of the Great Basin ranges of southern Nevada and adjacent California, by J. E. Spurr; scale, 20 miles to 1 inch.

Sierra Madre near Pasadena; by E. W. Claypole. Bull. Geol. Soc. of America, vol. 12, 1901, p. 494.

Drainage features of California; by Andrew C. Lawson. Bull. Geol. Soc. of America, vol. 12, 1901, p. 495.

Geology of the Great Basin in California and Nevada; by H. W. Turner. Bull. Geol. Soc. of America, vol. 12, 1901, p. 498.

Sketch of the pedological geology of California; by E. W. Hilgard. Bull. Geol. Soc. of America, vol. 12, 1901, p. 499.

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The Azoic system and its proposed subdivisions; by J. D. Whitney and M. E. Wadsworth. Bull. Harv. Coll. Mus. Comp. Zool., vol. 7, 1884, pp. 331-565.

Lithological studies; by M. E. Wadsworth. Memoirs Harv. Coll. Mus. Comp. Zool., vol. 11, 1884, pp. 1-208, i-xxxiii, with 8 pl.

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Revolution in the topography of the Pacific Coast since the Auriferous period; by J. S. Diller. Jour. Geol., vol. 2, 1894, pp. 32-54.

The Arkansas coal measures in their relation to the Pacific Carboniferous province; by James Perrin Smith. Jour. Geol., vol. 2, no. 2, February-March, 1894.

The author refers to the Pacific Carboniferous sea under the following headings: Revolution in Devonian time; The Carboniferous sea; Upper Carboniferous in the West; The Pawhuski limestone; Interchange of life between East and West; Replacement of limestone by the coal-bearing formation in Western Europe; Land areas in the West; The Permian Pacific Ocean; Triassic Pacific Ocean.

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Columnar section of the metamorphic series: *Sacramento formation*—Kennett limestones and shales. *McCloud formation*—occurrence and character. *Baird shales*—distribution and fossils; affinities of the fauna. *McCloud limestone*—occurrence and character; fauna of the McCloud limestone. *Pit formation*—general character of the rocks; the Carboniferous argillites; the Triassic shales and conglomerates. *Cedar formation*—distribution and character; Swearinger slates; Hosselkus limestone; Atractites beds; Spiriferina beds; etc. *Bend formation*—Jura-Trias uncomformity.

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The stratigraphy of the California coast ranges; by H. W. Fairbanks. Jour. Geol., vol. 3, no. 4, 1895, pp. 415-433.

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A sketch of the geological development of the Pacific slope; by G. F. Becker. Proc. Newport Natural History Society, 1886-87, Doc. 5, pp. 1-12. Newport, 1887.

NEW YORK LYCEUM OF NATURAL HISTORY; ALSO NEW YORK ACADEMY OF SCIENCES.

Catalogue of shells collected at Panama, with notes on synonymy, station, and habitat; by C. B. Adams. Ann. N. Y. Lyceum of Nat. His., vol. 5, 1852, pp. 229-548. (Also published separately.)

The author gives full notes and descriptions, but no illustrations. Out of nearly 500 species, over 100 were new; but few of them extend to California, though many of the species are found living or fossil farther north.

The origin of guano and infusorial deposits; by A. M. Edwards. Trans. N. Y. Lyceum Nat. His., vol. 1, 1871, pp. 229-234.

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Foraminifera from Post Pliocene sand at Santa Barbara, California; by A. Woodward. N. Y. Micros. Soc. Jour., vol. 5, 1889, pp. 24-25.

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On the earthquake of March 26, 1872; by J. D. Whitney. Overland Monthly, vol. 9, 1872.

On mountain sculpture in the Sierra Nevada, and the method of glacial erosion; by E. S. Carr. Overland Monthly, May, 1874.

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Report on the geology of the Sierra Nevada, or Californian, range; by John B. Trask. Pharmaceutical Journal, vol. 14, 1855, pp. 20-24.

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Journal, 2d series: Vol. 1, 1847—Vol. 10, 1895.
Proceedings, 1st series: Vol. 1, 1841—Vol. 8, 1856.
Proceedings, 2d series: Vol. 1, 1857—Vol. 14, 1870.
Proceedings, 3d series: Vol. 1, 1871—Vol. 32, 1902.

Descriptions of new marine shells from Upper California, collected by Thomas Nuttall, Esq.; by T. A. Conrad. Journal Phila. Acad. Nat. Sci., 1st ser., vol. 7, 1837, pp. 227-268, pl. 17-20.

Several of the species appear in the Tertiary formation of California. A list can be found in Dr. Cooper's catalogues.

Descriptions of eighteen new Cretaceous and Tertiary fossils; by T. A. Conrad. Proc. Phila. Acad. Nat. Sci., vol. 7, 1855, pp. 265-268.

Anomia subcostata, Colorado Desert; *Ostrea Heermanni*, Colorado Desert; *Pecten Heermanni*, Cal.; *Cemorcia crucibuliformis; Pandora bilirata; Cardita occidentalis.*

Notes on the Miocene and Post Pliocene deposits of California, with descriptions of two new fossil corals; by T. A. Conrad. Proc. Phila. Acad. Nat. Sci., vol. 7, 1855, p. 441.

These fossils were afterward described and figured in Pacific Railroad Reports, vol. 6, 1857.

Notice of remarkable strata containing the remains of infusorial and polythalamia in the Tertiary formation of Monterey, Cal.; by W. P. Blake. Proc. Phila. Acad. Nat. Sci., vol. 7, 1856, pp. 328-331.

Descriptions of three new genera and twenty-three new species of Middle Tertiary fossils from California and one from Texas; by T. A. Conrad. Proc. Phila. Acad. Nat. Sci., vol. 8, 1856, pp. 312-316.

Schizopyga Californiana; Cryptomya ovalis; Thracia mactropsis; Mya Montereyana; M. subsinuata; Arcopagia medialis; Tapes linteatumo; Arca canalis; A. trileneata; A. congesta; Axinoea Barbarensis; Mulinia densata; Dosinia longula; D. alta; Pecten Pabloensis; Pallium Estrellanum; Janira bella.

These fossils were afterward described and figured in Pacific Railroad Reports, vol. 6, 1857, pp. 69-73.

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See also Bull. U. S. Geol. Sur. of the Territories, vol. 2, 1876.

Descriptions of new species of American Tertiary fossils and a new Carboniferous Cephalopod from Texas; by W. M. Gabb. Proc. Phila. Acad. Nat. Sci., vol. 5, 1861, pp. 367-372.

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Modiola striata, n.sp., Miocene, from Santa Barbara.
Sphenia bilirata, n.sp., Miocene, from Santa Barbara.
Venus rhysomia, n.sp., Miocene, from Santa Barbara.
Cardita monilicosta, n.sp., Miocene, from Santa Barbara.
Morrissia Horni, n.sp., Miocene, from Santa Barbara.

Indication of an Elotherium in California; by Joseph Leidy. Proc. Phila. Acad. Nat. Sci., vol. 20, 1868, p. 177.

Elotherium superbus, n.sp., from Calaveras County.

On mastodon remains; by Joseph Leidy. Proc. Phila. Acad. Nat. Sci., vol. 22, 1870, pp. 96-99.

On a mastodon discovered in Contra Costa, California.

Vertebrate fossils from auriferous gravels; by Joseph Leidy. Proc. Phila. Acad. Nat. Sci., vol. 22, 1870, p. 125.

From Table Mountain, Tuolumne County.

On an extinct whale from California; by E. D. Cope. Proc. Phila. Acad. Nat. Sci., vol. 24, 1872, pp. 29-30.

Remarks on extinct mammals from California; by Joseph Leidy. Proc. Phila. Acad. Nat. Sci., vol. 25, 1873, p. 259.

Extract of a letter relating to mammalian fossils in California; by Dr. L. G. Yates. Proc. Phila. Acad. Nat. Sci., vol. 26, 1874, pp. 18-21.

This paper gives a list of localities—fossil elephas, and fossil mastodon.

The blue gravel of California; by E. Goldsmith. Proc. Phila. Acad. Nat. Sci., vol. 26, 1874, pp. 73-74.

Descriptions of new fossil shells from the Tertiary of California; by R. E. C. Stearns. Proc. Phila. Acad. Nat. Sci., vol. 27, 1875, pp. 463-464, pl. 27.

Opalia varicostata, n.sp.; *O. anomala*, n.sp.

On Itacolumite from Mariposa County; by W. P. Blake. Proc. Phila. Acad. Nat. Sci., vol. 28, 1876, pp. 325-326.

Note on a Cerripede of the California Miocene, with remarks on fossil shell; by T. A. Conrad. Proc. Phila. Acad. Nat. Sci., vol. 28, 1876, pp. 273-275.

The author refers *Tamiosma gregaria*, Conrad, to the genus *Balanus*.

On the occurrence of Ammonites in deposits of the Tertiary age; by A. Heilprin. Proc. Phila. Acad. Nat. Sci., vol. 34, 1882, p. 94.

On the age of the Tejon rocks of California and the occurrence of Ammonitic remains in Tertiary deposits; by A. Heilprin. Proc. Phila. Acad. Nat. Sci., vol. 34, 1882, pp. 196-214.

The author remarks (p. 213) that the rocks of the Tejon group (Cretaceous, Div. B, of the California Survey), despite their comprising, in their contained faunas, a limited number of forms from the subjacent (Cretaceous) deposits, and a few undoubted representatives of the *Ammonitidae*, are of Tertiary (Eocene) age.

The Eocene age of the Tejon rocks is also maintained by Prof. Jules Marcou, who made a personal examination of the region. (Rept. Chief Engineers, 1876, p. 387.)

On supposed Tertiary Ammonites; by J. S. Newberry. Proc. Phila. Acad. Nat. Sci., vol. 34, 1882, pp. 194-195.

On diorite from California; by Eli S. Reinhold. Proc. Phila. Acad. Nat. Sci., vol. 34, 1882, p. 59.

Extinct mammalian fauna of Dakota and Nebraska, including an account of some allied forms from other localities; by J. Leidy. Jour. Phila. Acad. Nat. Sci., vol. 7, 1869.

SANTA BARBARA SOCIETY OF NATURAL HISTORY.

Infusorial earth at Santa Barbara, California; by W. W. Finch. Bull. Santa Barbara Soc. Nat. His., no. 1, 1887, pp. 8-11.

Specimens of coniferous wood saturated with bitumen; by H. C. Ford. Bull. Santa Barbara Soc. Nat. His., vol. 1, no. 2, 1891.

ST. LOUIS ACADEMY OF SCIENCES.

Descriptions of new fossils from the Tertiary formation of Oregon and Washington Territories, and the Cretaceous of Vancouver Island, collected by Dr. John Evans, U. S. Geologist, under instructions from the Department of the Interior; by B. F. Shumard. Trans. St. Louis Acad. Sci., vol. 1, 1858, pp. 120-125.

These fossils were obtained from Port Orford, Willamette Valley, Coos Bay, and Vancouver Island. The following are described but not figured: *Lucina fibrosa*, n.sp.; *Corbula Evansana*, n.sp.; *Leda Willamettensis*, n.sp.; *L. Oregona*, n.sp.; *Pecten Coosensis*, n.sp.; *Venus securis*, n.sp. From the Cretaceous of Vancouver Island: *Inoceramus Vancouverensis*, n.sp.,; *Pinna calamitoides*, n.sp.; and *Pyrula glabra*, n.sp.

SCIENCE.

A weekly journal devoted to the advancement of science, published in New York City.

Canyons, their character and origin; by William Bross. Science (edited by John Michels), vol. 3, 1881, pp. 468-470.

Sierra structure; by G. K. Gilbert. Science, March 23, 1883, p. 195.

Rocks of Lassen's Peak and Shasta; by J. S. Diller. Science, vol. 3, 1884, pp. 551-552.

The steep slopes of the Western loess; by E. W. Hilgard. Science, vol. 4, 1884, p. 302.

Coal in the Chico group of California; by J. S. Diller. Science, vol. 5, 1885, p. 43.

This announcement shows that the Chico group, like its equivalent, the Nanaimo group, is a coal-bearing bed.

The author states that a number of fossils were collected from the coal-bearing strata in northern California, eight miles northeast of Yreka, on the road to Linkville, Oregon. He does not give a list, which is given in Dr. White's report on the Chico group.

The latest volcanic eruption in the United States; by C. E. Dutton. Science, vol. 6, 1885, p. 46.

Agriculture and late Quaternary geology; by E. W. Hilgard. Science, vol. 11, 1888, pp. 241-242.

Descriptions of evidence of an ancient drainage system in the upper San Joaquin Valley, California.

North American Mesozoic; by Charles A. White. Science, vol. 14, 1889, pp. 160-166.

Correlations of Tejon deposits with Atlantic stages of the Gulf slope; by G. D. Harris. Science, vol. 22, 1893, p. 97.

Petroleum in southern California; by S. F. Peckham. Science, vol. 23, 1894, pp. 74-78.

Notes on a breathing gas well; by H. W. Fairbanks. Science, new ser., vol. 3, 1896, pp. 693-694.

A new amphibole-pyroxene rock and some orbicular rocks from California; by H. W. Turner. Science, new ser., vol. 5, 1897, p. 511.

The granitic rocks of Sierra Nevada; by W. Lindgren. Science, new ser., vol. 5, 1897, p. 361.

Latest volcanic eruption on the Pacific Coast; by J. S. Diller. Science, new ser., vol. 9, 1899, pp. 639-640.

Some observations bearing on the probable subsidence, during recent geologic times, of the Island of Santa Catalina off the coast of southern California; by William E. Ritter. Science, new ser., vol. 14, 1901, pp. 575-577.

A supposed early Tertiary peneplain in the Klamath region, California; by Oscar H. Hershey. Science, June 2, 1902, pp. 951-954.

SCIENTIFIC AMERICAN.

A remarkable salt deposit; by Charles F. Holder. Sci. Am., vol. 84, 1901, p. 217.

Describes occurrence of salt on the Salton Desert in California.

Erosion on the Pacific Coast; by Charles F. Holder. Sci. Am., vol. 85, 1901, p. 8.

Physiographic features of the California coast.

SCIENTIFIC AMERICAN SUPPLEMENT.

Ancient river channels of California; by H. S. Jacobs. Sci. Am. Suppl., vol. 3, no. 75, 1877, p. 1184.

The genesis of petroleum and asphalt in California; by A. S. Cooper. Sci. Am. Suppl., Sept. 2, 1893, and Dec. 30, 1893.

Fossilized big trees, California; by A. Lake. Sci. Am. Suppl., vol. 39, 1895, p. 15862.

The gold belt of California; by H. W. Turner. Sci. Am. Suppl., vol. 39, 1895, pp. 16167-16198.

SCHOOL OF MINES QUARTERLY.

Published at Columbia University, New York City.

The genesis and distribution of gold; by J. S. Newberry. School of Mines Quarterly, Nov., 1881.

Notes on the dry lakes of southern Nevada and California, with relation to the loess; by Walter P. Jenney. School of Mines Quarterly, vol. 10, 1889, pp. 316-318.

Description of the lakes, their deposits and history.

WASHINGTON PHILOSOPHICAL SOCIETY.

Deposits of volcanic dust in the Great Basin; by J. C. Russell. Bull. Wash. Phil. Soc., vol. 7, 1885, pp. 18-20.

Notes on the faults of the Great Basin and of the eastern base of the Sierra Nevada; by J. C. Russell. Bull. Wash. Phil. Soc., vol. 9, 1887, pp. 5-6.

See also Neues Jahrb., Band 2, 1887, pp. 317-318.

Notes on the geology of northern California; by J. S. Diller. Bull. Wash. Phil. Soc., vol. 9, 1887, pp. 4-5; additional note on p. 8.

See Am. Jour. Sci. and Arts, 3d ser., vol. 33, 1887, pp. 152-153; Am. Geologist, vol. 1, 1888, pp. 125-126; and Popular Sci. Monthly, vol. 32, 1888, p. 419.

This paper is an abstract of Bull. U. S. Geol. Sur., no. 33.

Stages of geologic history of Sierra Nevada; by G. K. Gilbert. Bull. Wash. Phil. Soc., vol. 9, 1887, p. 7.

Remarks following paper, by J. S. Diller, on geology of northern California.

Mohawk lake-beds; by H. W. Turner. Bull. Wash. Phil. Soc., vol. 11, 1891, pp. 385-410, pl.

WEST AMERICAN SCIENTIST.

Published at San Diego, Cal.

New Cretaceous fossils. West Am. Sci., vol. 3, no. 21, pp. 28-31.

Trochus (*Oxystele*) *euryostomus*, White; *Cerithium Pillingsi*, White; *C. totium sanctorum*, White; *Solarium Wallalensis*, White; *Nerita Californiensis*, White.

All these fossils were described in U. S. Geol. Sur. Bull. No. 22, 1885, except *Nerita Californiensis*.

Minerals and mines of San Diego; by C. R. Orcutt. West Am. Sci., vol. 3, no. 23, p. 69.

Gypsum on the coast of Lower California; by M. Lopateck. West Am. Sci., vol. 3, no. 25, p. 117.

Fossil botany; by Dr. L. G. Yates. West Am. Sci., vol. 3, no. 29, p. 180.

Fossil botany, no. 2; by Dr. L. G. Yates. West Am. Sci., vol. 3, no. 30, p. 201.

Fossil botany, no. 3; by Dr. L. G. Yates. West. Am. Sci., vol. 3, no. 31, p. 213.

Fossil botany, no. 4; by Dr. L. G. Yates. West Am. Sci., vol. 4, no. 34, p. 20.

Fossil ferns; by O. D. Walbridge. West. Am. Sci., vol. 3, no. 31, p. 217.

A study of river geology; by W. R. Lighton. West Am. Sci., vol. 4, no. 34, p. 24.

The gold fields of Lower California; by C. R. Orcutt. West Am. Sci., vol. 6, no. 42, p. 4.

Some notes on Tertiary fossils of California; by C. R. Orcutt. West Am. Sci., vol. 6, no. 45, p. 70.

Gives list of fossils at Pacific Beach, San Diego.

Some notes on Tertiary fossils of California; by C. R. Orcutt. West Am. Sci., vol. 6, no. 46, p. 84.

List of fossils in a San Diego well.

The California geysers; by Joseph Keep. West Am. Sci., vol. 6, no. 47, p. 99.

The Colorado Desert; by C. R. Orcutt. West Am. Sci., vol. 7, no. 54, 1890, p. 55.

Geology of San Diego County, California; by H. W. Fairbanks. West Am. Sci., vol. 10, no. 86, 1901.

The Colorado Desert; by C. R. Orcutt. West Am. Sci., vol. 12, no. 102, 1901.

ZOE.

Published at San Francisco.

On the discovery of *Proetus ellipticus,* Meek, in Shasta County, California, which is referred to the Waverley group; by A. W. Vogdes. Zoe, Proceedings of Societies, vol. 3, 1892, p. 274.

Notes on the geology of the Farallones; by J. W. Blankinship. Zoe, vol. 3, 1892, pp. 145-146.

PART IV.

PUBLICATIONS OF STATE GEOLOGICAL SURVEYS.

PART IV.

PUBLICATIONS OF STATE GEOLOGICAL SURVEYS OTHER THAN THAT OF CALIFORNIA.

GEOLOGICAL SURVEY OF ARKANSAS.

Manganese: its uses, ores, and deposits; by R. A. F. Penrose, Jr. Geol. Sur. Arkansas Report 1890, vol. 1. Little Rock, 1891. xxvii, 642 pp. plates and maps.

Chapter XIX relates to the manganese deposits of California, giving the location of the deposits, the geologic relations of the manganese deposits, the manganese deposits of the Coast Ranges, the manganese deposits of the Sierra Nevada, etc.

GEOLOGICAL SURVEY OF MISSOURI.

Lead and zinc deposits; by Arthur Winslow, assisted by James D. Robertson. vol. 6. Jefferson City, 1894. 2 vols.

On page 187 the author states that although California is not classed as a lead- and zinc-producing State, it contains extensive deposits of lead-producing ores. These occur principally in Inyo and San Bernardino counties, in the southwestern portion of the State. He gives the localities of the lead deposits of San Bernardino County, near Kingston Mountain, in dolomitic limestone; near Denby, in the Old Woman Mountains. He mentions a large and extensive ledge of carbonate and galena in granite and slate formations. Other localities are mentioned, both in Inyo and San Bernardino counties, on the authority of the Ninth Annual Report of the State Mineralogist; Tenth and Eleventh Census Reports.

GEOLOGICAL SURVEY OF CANADA.

Mesozoic fossils, vol. 1, by J. F. Whiteaves. Montreal, 1876-80. 3 parts, 262 pp., 32 plates, and one map.

The author, in his description of the Queen Charlotte Island fossils, includes certain Californian Cretaceous fossils described by Gabb, Palæontology of California. Of these fossils, thirty-one species are like those of the Chico group, nine of the Martinez group, with nine of the Tejon group.

PART V.

MISCELLANEOUS PUBLICATIONS.

1. Adventures of the goldseekers in California.
2. Chemical geology relating to California.
3. Early accounts of the gold discovery in California.
4. Glaciers of California.
5. Geology of San Francisco Bay. A copy of the first geological paper on California, from Beechey's Voyages.
6. Local geology, Mines and Mineral Reports, etc.
7. Mineral springs of California.
8. Mining claims and books on Legal titles, etc.

PART V.

MISCELLANEOUS PUBLICATIONS.

(*Alphabetical List.*)

AARON, C. H. Practical treatise on testing and working silver ore. San Francisco, 1876. 114 pp.

——— Assaying. In three parts; in two volumes. San Francisco, 1885.

——— Leaching gold and silver ores. San Francisco, 1880.

AIMARD, GUSTAVE. The goldseekers. Philadelphia, 1863. 12mo.

ALLEN, W. W., *and* AVERY, R. B. California gold book. First nugget; its discovery and discoverers, and some of the results proceeding therefrom. San Francisco and Chicago, 1893. 439 pp.

There are some geological notes given in Chapter XII, under the heading of Gold.

ALLSOPP, ROBERT. California and its gold mines. Being a series of recent communications from the mining district upon the present condition and future prospects of quartz mining. London, 1853. 149 pp.

This work contains a letter on the advantages of California, and also an article entitled, Why quartz companies are failures.

ANDERSON, ALEXANDER D. The silver and gold of the Southwest. St. Louis, 1877.

ANDERSON, C. L. The natural history of Santa Cruz County, comprised in chapters on Geology, Marine and Land Botany, Fishes and Birds, for the use of students of all ages, in or out of schools, and the public generally. Oakland, 1894. 67 pp.

ANDERSON, WINSLOW. Mineral springs and health resorts of California, with a complete chemical analysis of every important mineral water in the world. San Francisco, 1890. 384 pp. illustrated.

This book contains brief geological descriptions on the formation of mineral springs, causes of subterranean heat, with notes on the mineral springs of the Coast Range, etc.

ANSTED, DAVID THOMAS. The goldseeker's manual. London, 1849. 96 pp.

ASHBURNER, WILLIAM. Report of California Water Company. 1880. San Francisco, 1880.

Contains report upon the property of the California Water Company, by W. Ashburner; with report on gold mines, by E. P. Hutchins, and report of Amos Bowman.

——— Report of the Sulphur Bank Quicksilver Mining Company, Lake County, California. 1876.

Contains reports by William Ashburner, James D. Hague, Thomas Price, and M. C. Vincent. A general description of Clear Lake region is given on page 5.

——— Report upon Approach Gold Quartz mine. San Francisco, 1866.

ATTWOOD, MELVILLE. Paper on the microscopical examination of rocks. San Francisco, 1888.

BARRY, JOHN D. Report on the proposed Eocene tunnel at Big Bend, on the North Fork of the Feather River, Butte County, California.

Contains map and section of rocks.

BEECHEY, CAPT. F. W. Narrative of a voyage to the Pacific and Behring Strait, to co-operate with the Polar expedition performed in his Majesty's ship Blossom, under the command of Capt. F. W. Beechey. London, 1831. 2 vols.

In the volume on the zoology of Captain Beechey's voyage (London, 1839, 4to), by Prof. Buckland, there are several references to the geology of the vicinity of San Francisco, prepared from the notes and collections of Lieutenant Belcher.

BEECHEY, CAPT. F. W. Narrative of a voyage, etc.

A map of the headland, embracing San Francisco Bay, accompanies this report. This is colored around the shores so as to indicate the several formations; serpentine, sandstone, and jasper rock are represented. Lieutenant Belcher collected specimens of serpentine on the west side of Angel Island. The occurrence of jasper rock is also noted.

The author, on page 174, gives the following account of the geology of California, which was the first ever published; it is given in full, on account of its value:

GEOLOGY, BAY OF SAN FRANCISCO.

"The specimens collected in and near the Bay of San Francisco consist of many varieties of common serpentine, bronzite, and asbestos; clay-slate and mica slate, chlorite slate, horn-stone, brown, green, and red jasper, and rolled blocks of glassy actynolite; grey sandstone, and imperfect wood-coal. The country near the port of San Francisco is composed chiefly of sandstone, jasper, and serpentine. Wood-coal is found in slight seams on the north side of the entrance of the bay, and native salt near Santa Clara. Many of the summits of the hills are composed of jasper, forming elongated ridges, of which the general direction is north and south. This jasper is succeeded by sandstone, of a loose texture, not effervescing with acids, and disposed in every angle of stratification, occasionally it is hard and of a blue cast; it is frequently interrupted by abrupt masses of laminated jasper in wavy stratification. The appearance of the jasper, at its contact with the sandstone, is often very remarkable. The jasper appears not to have acted on or displaced the sandstone; its exterior, for eighteen inches or two feet, is usually rugged, and mixed with carbonate of lime, quartz, and indurated clay; its interior, however, presents a very beautiful wavy disposition of the component laminæ, a remarkable example of which occurs at the Needle Rock, nearly opposite the fort. A view of it is engraved at Pl. III, Geology. It resembles an immense mass of sheets of paper, or bands of list, crumpled and contorted by lateral pressure. This contortion only occurs in the red jasper, the yellow being seldom (if at all) stratified, but generally separated by cracks into rhomboidal pieces. A mass of at least one hundred feet in thickness is beautifully stratified in short, wavy lines, opposite the fort near Punta Diavolo, and rests on sandstone.

"Between Punta Boneta and Punta Diavolo the sandstone is of a bluish-grey colour, containing particles of coal.

"The Island of Los Angelos is of very confused formation. Its eastern side is sandstone, with occasional jasper rocks; its western side exhibits sandstone, conglomerate, clay-slate, and serpentine; its south side, bluish earth, (apparently decomposed serpentine), and jasper beds containing red siliceous nodules, and much iron pyrites. The superstratum of this island is almost entirely composed of the debris of sandstone and jasper rocks, a little slate and bluish earth, and betrays appearances of violence. It is about 900 feet above the level of the sea.—B.

BEECHEY, CAPT. F. W. Narrative of a voyage, etc.

"The cliffs of the main land, opposite the northwest shore of the Island of Los Angelos afford masses of actynolite and beds of mica slate and talc slate.

"The Island of Molate, about four miles north of Los Angelos, appears at a distance to be of a red colour, and contains much red jasper, and in a small portion of the cliff black ferruginous slate.—C.

"In the Island of Yerba Buena, the perpendicular cliffs west of the bay are formed of clay-slate at their base, whilst the superincumbent rock is sandstone, for the most part in angular masses, and without distinct stratification. The clay-slate is much contorted, arched, and wavy, assuming an east and west direction, and dipping chiefly to the south at a considerable angle. The sandstone shows itself in the point that forms the eastern part of the bay.

"The rounded hills of the peninsula on which the Presidio of San Francisco is placed, are variously formed of sandstone, loose sand, serpentine, flinty slate, and jasper. The westernmost hill, which rises from the sea between the fort and the Punta di los Lobos, is serpentine. The north declivity, on which the quadrangle of the Presidio is built, is sandstone. To the eastward of this the serpentine again forms a hill of equal if not greater height. The hill to the westward of the Mission is serpentine. That which rises to the south of it exposes a bare and scarped brow of flinty slate and jasper. Rocks of a similar nature protrude through the surface of the soil of the hills which separate San Francisco from the extensive valley of Santa Clara (Las Salinas), about six leagues to the southward. These hills are called Sierras di los Samburnos, and terminate on the north in a rocky prominence, in the harbour east of the inlet of the Mission.

"The range of mountains, Las Sierras del Sur, which bound the above valley to the south, expose flinty slate approaching to jasper, a little northwest of Las Pulgas, and about eighteen miles east-southeast of the Mission of San Francisco. Between the Missions of Santa Clara and Santa Cruz, these mountains form four parallel ranges, the two middle ones highest (about 1,500 feet), with steep declivities; the first two valleys are narrow; the third is more extensive, leading to the fourth range, which is considerably lower than the others. The first two ridges are composed of serpentine and a jaspery rock, the third principally of sandstone and occasionally jasper, and the fourth, that nearest Santa Cruz, entirely of sandstone, the upper part being mostly decomposed into loose sand. Petrified bones of a cylindrical form were found in this cliff of sand or loose sandstone in 1827.

"Where this range approaches the road from Santa Clara to San Juan, nearly half-way, the northern declivity is covered with fragments of serpentine, and a little farther on is sandstone and flinty slate.

"In the neighbourhood of the Mission of San Juan is a sandstone conglomerate, and on the road crossing from San Juan to the plain of Monterey, is sandstone. From the interior of the range between San Juan and Monterey, the inhabitants of Las Animas had brought

BEECHEY, CAPT. F. W. Narrative of a voyage, etc.

compact basalt, containing particles of magnetic iron ore, which encouraged the delusive hope of rich mines. A few miles down the river Paxaros, from where the road to San Juan crosses it, there are thermal springs, and sulphur in their neighbourhood. On the Santa Cruz side, near the Mission, there is said to be coal, but it has never been mined. Along the east shore of the Bay of San Francisco, for thirty-five miles east-southeast, from beyond the Island of Molate, towards San Josef and Santa Clara, the harbour is bounded generally by low alluvial soil, and only in a few places do low and rocky cliffs protrude. Near the Mission of San Josef there are some hot springs in the plain, surrounded by a verdant covering. Earthquakes are rather common, and one in 1806 so shook the building of the Mission of Santa Clara, that a new one was obliged to the erected. A few years ago, a boat belonging to a whale ship, when lying in several feet water, was suddenly thrown on the beach and left dry, and a vessel in the Bay of Monterey was suddenly and severely tossed about by the sea, and the shock was felt on the shore at the same time. At ten o'clock on the 26th December, 1827, a slight shock was felt at San Josef. The shocks are said to come along the coast from the northward, and when they are also felt at Monterey it is some minutes later.

"One was perceived at the Presidio of San Francisco in the month of April, 1827. It continued a short time, but the shaking was so slight that it injured nothing.—C."

BELL, WILLIAM A. New tracks in North America. London, 1870. 564 pp.

Gives history of mining under the Spaniards, mines along the Colorado, etc. pp. 426 *et seq.*

BERRY, GEORGE. The gold of California. London, 1849.

BLAKE, W. P. Remarks upon the geology of California. Washington, 1855. tract.

——— Sur l'action des anciens glaciers dans la Sierra Nevada de Californie, et sur l'origine de la Vallee de Yo-Semite. Paris, 1867. tract. 4to.

——— Report of a geological reconnoissance in California made in connection with the Expedition to survey routes to California for a railroad from the Mississippi River to the Pacific Ocean in 1853. New York, 1858. 392 pp. illustrated.

——— The production of precious metals. New York, 1869.

BORAX. Report on the borax deposits of California and Nevada. Sacramento, 1888. 104 pp., 25 illustrations, and 3 photos of borax region.

Only sixty copies printed for members of Congress.

BORTHWICK, J. D. Three years in California. Edinburgh, 1857. 384 pp. illustrated.

Chapter XIX treats of the northern and southern mines.

BOUND HOME, or the Gold-Hunter's Manual. New York, 1852.

BOUCHACOURT, C. Notice industrielle sur la Californie. Lyons, 1849.

BOURNE, B. F. Captive in Patagonia. Boston, 1853.

Contains much about California.

BOWIE, AUG. J. Hydraulic mining in California. San Francisco, 1878.

—— Practical treatise on hydraulic mining in California. New York, 1885. 313 pp. 72 plates and illustrations.

—— *Same.* New York, 1887. 313 pp. maps, plates, and sections.

—— Mining debris in California rivers. 80 pp. 5 pl.

BOWMAN, AMOS. Coast surface and scenic geology of California, 1873. 8 pl.

—— Report on the properties and domain of the California Water Company, situated on Georgetown Divide; embracing the mining, water, and landed resources of the country between the South and Middle Forks of the American River, in El Dorado County, California. San Francisco, 1874. 225 pp. maps, plates, and illustrations. (Map of the Georgetown Divide, El Dorado County.)

The report contains a section on vein systems, their origin and relations. pp. 106-121.

BREWER, WM. H. Warren's New Physical Geography. Philadelphia, 1890. 144 pp.

BROOKS, J. T. Four months among the gold-finders in Alta California. London, 1849. 207 pp.

BROWNE, J. ROSS. The Coast Ranges; a chronicle of events in California. A series of articles in Harper's Magazine for 1861-62.

June number, 1861, vol. 23, no. 1, pp. 1-14.
August number, 1861, vol. 23, no. 2, pp. 306-316.
September number, 1861, vol. 23, no. 3, pp. 593-606.
December number, 1861, vol. 24, no. 4, pp. 1-16.
February number, 1862, vol. 24, no. 5, pp. 289-301.

BRYANT, EDWIN. What I saw in California. Being a journal of a tour by the emigrant route and South Pass of the Rocky Mountains across the continent of North America, the Great Basin, and through California, in the years 1846 and 1847. London, 1849. 412 pp.

The appendix gives an account of the discovery of gold mines in California.

BUFFUM, E. GOULD. Six months in the gold diggings, and scenes in Upper and Lower California, from 1847 to 1850. Philadelphia, 1850. 172 pp.

Chapter VIII treats of the extent and richness of the California gold fields.

BURNETT, PETER H. Recollections and opinions of an old pioneer. New York, 1880. 448 pp.

Chapter VI treats of the gold discovery in California.

BUTLER, A. W. Resources of Monterey County. San Francisco, 1875.

CALIFORNIA GOLD REGIONS, with a full account of the mineral resources, etc. New York, 1849. 48 pp.

CALIFORNIA; its gold and its inhabitants. London, 1856. 2 vols.

——— Description of the recently discovered petroleum region in California. New York, 1865. tract.

CALIFORNIA: Its past history; its present position; its future prospects, etc., with an appendix containing the official reports made to the Government of the United States. London, 1850. 270 pp.

——— Life in; by an American. New York, 1846. 341 pp.

On page 90 the author speaks of visiting a spot on the Alisal, near Monterey, from which considerable quantities of silver ore had been obtained. It was the first mine discovered in California, from this author's account.

——— California as it is. Being a concise description of the State by counties, with memoranda of the progress of each agricultural, horticultural, mining, and other industries up to the year 1887-88, etc. San Francisco, 1888. 257 pp. map.

There are five editions of this work. The first one was published by the Daily and Weekly Call in 1882.

CALIFORNIA MINERS' ASSOCIATION. Annual reports from 1893 to 1902. San Francisco.

CALIFORNIA MINES AND MINERALS. Souvenir edition on California mines, 1899. Issued by California Miners' Association. San Francisco, 1900. illustrated. 450 pp.

Contains chapters as follows: Mineral industry of California, by Charles G. Yale; Mother Lode of California, by Ross E. Browne; Electric power for mining, by A. M. Hunt and W. Meredith; Notes on gold dredging, by R. H. Postlethwaite; Deep mining in Calaveras County, by J. H. Collier, Jr.; Genesis of petroleum and asphaltum, by A. S. Cooper; Fineness of California gold, by F. A. Leach; Petroleum in California, by W. L. Watts; Copper resources of California, by M. M. O'Shaughnessy; Machine drills in stoping, by B. L. Thane; New form of purifier, by E. H. Simonds; College of Mining, University of California, by Prof. S. B. Christy; Mining debris legislation, by Charles G. Yale; Sketches of mineral resources of Nevada, Butte, Placer, El Dorado, Amador, Calaveras, Tuolumne, Mariposa, Siskiyou, Trinity, and other counties; The California Miners' Association's history, by J. H. Neff; California as a field for mining capital, by W. C. Ralston.

CARPENTER, PHILIP P. Lectures on the shells of the Gulf of California. Washington. 25 pp. 6 illustrations.

This article appeared in the Annual Report of Smithsonian Institution, 1859.

CARSON, J. H. Early recollections of the mines. Stockton, 1852.

CASTANARES, MANUEL. Letters from California addressed to the President of the Republic of Mexico. City of Mexico, 1845.

Manuel Castanares was a Representative in the National Congress, from the Department of California, in 1845. In his first letter, under date of March 2, 1844, the author states that gold placers were discovered in California last year, extending some thirty leagues. In his second letter, under date of September 1, 1844, the writer states: "The mining interest in California is of great importance, and I have the satisfaction of assuring your Excellency that it forms one of the most valuable resources of this Department. Besides the silver mines which are found, there are various other mines which have actually yielded metals; the gold placer especially is worthy of great attention, which extends nearly thirty leagues, was discovered lately, together with mines of mineral coal."

CLAUDET, F. G. Gold. New Westminster, 1871.

COIGNET, M. Rapport sur les mines de New Almaden. Paris, 1866.

COLTON, WALTER. The Land of Gold, or three years in California: a diary from 1846 to 1849. New York, 1860. 456 pp.

Chapter XXVII treats of the gold region, its locality, nature, and extent. Chapter XXX treats of the gold-bearing quartz, their locality, richness, and extent.

COOPER, DR. J. G. Resources of San Luis Obispo County. San Francisco, 1875.

CORY, THOMAS G. Gold from California. Lecture, March 25, 1856.

COULTER, THOMAS. Notes on Upper California. In Geog. Soc. Jour., vol. 5, 1835, pp. 59-69.

CRONISE, TITUS F. The natural wealth of California. San Francisco, 1868. 696 pp.

Comprising early history; geography, topography, and scenery; climate; agriculture and commercial products; geology, zoology, and botany; mineralogy, mines, and mining processes; manufactures;

CRONISE, TITUS F.

steamship lines, railroads, and commerce; immigration, population, and society; educational institutions and literature; together with a detailed description of each county, its topography, scenery, cities and towns, agricultural advantages, mineral resources, and varied productions.

Chapter VI treats of geology of the State; principally taken from Professor Whitney's reports, Pacific Railroad Reports, and Blake's Geological Reconnaissance in California, etc.

DANA, JAMES D. Manual of geology, treating of the principles of the science, with special reference to American geological history. 2d edition. New York, 1874. 828 pp. (Third edition, New York, 1895.)

This work contains special articles on California artesian wells, p. 654; also, notes on the Carboniferous, Cretaceous, Jurassic, Quaternary, sub-Carboniferous, Tertiary, and Triassic formations; with references to geysers, hot springs, human relics, and terraces in California.

DAVIES, WILLIAM O. Report of the Pacific Coal Company. New York, 1865. 10 pp.

Contains report of borings by W. O. Davies; coal fields on the Marsh ranch, in Contra Costa County, with section showing the dip of beds.

DAVISON, SIMPSON. The discovery and geognosy of the gold deposits in Australia, with comparisons and accounts of the gold regions of California, etc. London, 1860. 36 pp.

Devoted to personal experience in the gold mines of California.

DELANO, A. Life on the plains and among the diggings. Being scenes and adventures of an overland journey to California, with particular incidents of the route, etc. Auburn and Buffalo, 1854. 384 pp.

Chapter XXVII treats of the resources of California, mineral wealth, etc.

DELESSERT, B. Les mines d'or de la Californie. 17 pp. tract. (Rev. d. Deux Mondes, vol. 5, 1849, p. 468.)

DELMAR, ALEXANDER. A history of the precious metals. London, 1880.

DENIS, FERD. Les Californiens. Paris, 1849. pamphlet. 45 pp.

This is an historical account of the settlement of California.

DUNBAR, E. E. Romance of the age, or discovery of gold in California. New York, 1867. 134 pp.

The author gives an account of the discovery of gold in California, with a brief history of previous accounts of gold mentioned by writers before 1848.

ELMORE, M. G. Esmeralda mining map. New map of the Esmeralda mining district to December, 1862. San Francisco, 1862.

These mines are south of Washoe, on the eastern slope of the Sierra Nevada, and partly in California.

EVANS, ALBERT S. A la Californie. Sketches of life in the Gold State. San Francisco, 1873.

The author gives passing references to mining, with illustrations.

FARNHAN, T. J. Life and adventures and travels in California. New York, 1852. 514 pp.

—— *Same.* New York, 1857. 468 pp. illustrated.

FELIX, J. Les cotes des Pacifique. Paris, 1846. 258 pp. maps.

FERRY, HYPOLITE. Description de la nouvelle Californie, geographique, politique, et morale. Paris, 1850. 386 pp.

Chapter III treats of the climate and mountain chains.
Chapter IV treats of the auriferous regions of California.

FEUCHTWANGER, DR. LOUIS. Valuable mining tables for ascertaining the weight of a cubic foot of any ore, metal, etc. (In California Farmer, vol. 29, no. 14, April 9, 1868. Also published as broadside.)

FORTUNE, H. W. Report of the property of Trinidad Copper Mining Company, Lower California. San Francisco, 1879. 11 pp. sections.

FOSTER, G. G. The gold regions of California. Being a succinct description of the geography, history, topography, and general features of California: including a carefully prepared account of the gold regions of that fortunate country, prepared from official documents and other authentic sources. New York, 1848. 80 pp. and map.

FRECH, FRITZ. Lethæa geognostica. I Theil, Lethæa palæozoica Entwickelung und Verbreitung des Palæozoicum, 2 Bd. 4 Lieferung Die Dyas. Stuttgart, 1902.

Dyas of California, pp. 515, 661; Trias, p. 474.

——— II Theil, Das Mesozoicum. I Heft Trias. Stuttgart, 1903.

FREMONT *and* EMORY. Notes of travel in California, comprising the prominent geographical, agricultural, geological, and mineralogical features of the country; also the route to San Diego, in California, including parts of the Arkansas, Del Norte, and Gila Rivers. Dublin, 1849. 311 pp.

FRIGNET, ERNEST. La Californie Histoire—Organisation, Politique et Administrative, Legislation, Description, Physique et Geologique, Agriculture, Industrie, Commerce. Paris, 1866. 471 pp.

Livre 3, Chapter I, treats of the geology.

FROST, JOHN. History of the State of California. Auburn, 1850. 508 pp.

Chapter XIII treats of the mineralogical and other characteristics of gold, etc.

GEOLOGY of California, the supply of silver and gold. tract. 19 pp. (N. Amer. Rev., vol. 75, 1852, p. 277.)

GILPIN, WILLIAM. The central gold region; the grain, pastoral, and gold regions of North America, with some new views of its physical geography; and observations on the Pacific Railroad. Philadelphia, 1860. 194 pp. maps.

GOLD mines and mining in California. A new gold era dawning on the State; progress and improvements made in the business; perfected methods; progress and machinery; vast extent of auriferous territory; rich and varied character of deposit; a country abounding with elements of success; grand field for the profitable investment of the world's surplus capital. San Francisco, 1885.

Under the general heading of Hydraulic Mining, pp. 63-82, the author gives a few geological notes on the Pliocene rivers. On p. 333, a short account of the auriferous deposits peculiar to California. The gold bluffs and beaches are given, with a description of those of Humboldt County.

GOODYEAR, W. A. The coal mines of the western coast of the United States. San Francisco, 1877. 153 pp.

The part relating to California was republished, with additional notes and corrections, in the Seventh Annual Report of the State Mineralogist.

GREGORY, J. G. Guide to California and the Isthmus of Panama. New York, 1850.

HANKS, HENRY G. Address of the President of the California State Geological Society. Daily Alta, January 8, 1877.

——— Geological Society. Celebration of the first anniversary of the organization. Daily Alta, December 6, 1877.

These two papers were issued in pamphlet. They contain a list of private owners of mineral collections; also, notes on diatomaceous earth of the Pacific Coast.

——— Catalogue of the minerals, ores, rocks, and fossils of the Pacific Coast exhibition at the Paris Exposition of 1878. pp. i-xxiv and 1-99.

——— Coal and iron interest of the Pacific Coast. San Francisco, 1888. tract.

——— Notes on mica. San Francisco, 1882. tract.

——— Magnesia and its base and compounds, with particular reference to magnesite. San Francisco, 1895. 27 pp.

——— The deep-lying auriferous gravels and Table Mountain of California. San Francisco, 1901. 15 pp. plates.

HART, ALBERT. Mining statutes of the United States, California, and Nevada. San Francisco, 1877. 183 pp.

HASTINGS, L. W. A new description of Oregon and California, containing complete descriptions of those countries, together with the Oregon treaty and correspondence, and a vast amount of information relating to the soil, climate, productions, rivers and lakes, and the various routes over the Rocky Mountains; also an account, by Col. R. B. Mason, of the gold region, and a new route to California. Cincinnati, 1849. 168 pp.

HAYDEN, F. V. The great West, its attractions and resources; containing a particular description of the marvelous scenery, physical geography, fossils, and glaciers of this wonderful region, and the recent exploration in the Yellowstone Park, the wonderland of America. Bloomington, Ill., Philadelphia, 1880. 87 pp.

HELPER, H. R. Land of gold: reality vs. fiction. Baltimore, 1855. 300 pp.

HITTELL, JOHN S. The resources of California, comprising agriculture, mining, geography, climate, commerce, etc., and the past and future development of the State. 5th edition, with an appendix on Oregon, Nevada, and Washington Territory. San Francisco, 1869. 504 pp.

The first edition of this work was published in 1862. Chapter III treats of geology. There is also a chapter on mining.

Edition published in San Francisco, 1863, 1 vol., large 12mo, contains 464 pp.; another edition in 1866, 1 vol., large 12mo.

HOLLAND, CHARLES. Mines and mining. In the Coast Review, 1873, p. 73.

HUNTLEY, SIR HENRY. California; its gold and its inhabitants. London, 1856. 2 vols.

HUSE, CHARLES E. Sketch of the history and resources of Santa Barbara city and county. Santa Barbara, 1876.

HUTCHINGS, J. M. Scenes of wonder and curiosity in California. 1860. 236 pp. 92 illustrations.

——— Another edition. London, 1865. 267 pp. 100 illustrations.

——— Another edition, to which is added a tourist guide to the Yosemite Valley, Mount Shasta, Lake Tahoe, etc. New York, 1870. 292 pp. 100 illustrations.

JACKSON, ———. Map of the mining districts of California. 1851. Colored map, 18 by 22 inches.

The appendix to this map contains 16 pages.

JACKSON, C. T. The oil interest of southern coast of California. San Francisco Bulletin, July, 1865.

JOHNSON, T. T. Oregon and California, or sights in the gold region and scenes by the way. New York, 1849. 290 pp. (Also published New York, 1850. 324 pp.)

Chapters XXVII and XXVIII treat of the gold regions, volcanic formations of California, etc.

The first edition was published in 1849. A second edition was published in April, 1850, with the addition of eight new chapters. There were no illustrations in the first edition.

KELLY, WILLIAM. Excursion to California over the prairie, Rocky Mountains, and Great Sierra Nevada, with a stroll through the diggings and ranches of that country. London, 1851. vol. 1, 342 pp.; vol. 2, 334 pp.

KING, CLARENCE. Mountaineering in the Sierra Nevada. Boston, 1872. 292 pp.

KING, T. BUTLER. Report on the metallic and mineral wealth of California. Appendix to Taylor's El Dorado. New York, 1850.

KNEELAND, S. Wonders of the Yosemite Valley and of California. 97 pp. 2 maps. 10 photos.

KUSTEL, GUIDO. Concentration and chlorination of gold-bearing sulphurets, etc. San Francisco, 1868. 259 pp.

——— Roasting of gold and silver ores. New edition. San Francisco, 1880. 156 pp.

——— Nevada and California processes of gold and silver extraction.

LAPPARENT, A. DE. Traite de geologie. 3 vols. Paris, 1899-1900.

LAUR, P. De la production des metaux precieux en Californie. Paris, 1862. 132 pp.

——— Terrains auriferes de la Californie. 20 pp. In Rev. d. Deux Mondes, vol. 5, 1863, p. 453.

LE CONTE, JOSEPH. Elements of geology; a text-book for college and general readers. 2d edition. New York, 1878. 588 pp.

This work is of special interest to the student of California geology, containing many references to the geology of the State. We note an article on auriferous veins, given on p. 237; also, Quaternary period on the western side of the continent, p. 526.

LEVASSEUR, R. La question d'or, les mines de Californie et d'Australie, les anciennes mines d'or et d'argent. Paris, 1858.

LEVY, DANIEL. Les Francais en Californie. San Francisco, 1884. 366 pp.

The second part of this book treats rather extensively of the placer mines, where they were located, how worked, etc. pp. 80 *et seq.*

LOCK, ALFRED G. Gold; its occurrence and extraction, etc. London, 1882. 1229 pp.

The description of the California gold fields is given on pp. 129-154.

LYMAN, B. S. Bibliography of petroleum. U. S. Census Report, 1880, vol. 10, pp. 281; also Ann. Rep. Geol. Sur. Penn., 1886, part II.

This bibliography was prepared in 1875 by B. S. Lyman and presented to Geological Survey of Pennsylvania; also used by Prof. Peckham in the Tenth Census.

MACFARLANE, JAMES. The coal regions of America; their topography, geology, and development; with a colored geological map of Pennsylvania, a railroad map of all the coal regions, and numerous other maps and illustrations. Third edition, with a supplement for the year 1875. New York, 1877. 697 pp., with maps, etc.

Chapter XXX treats of the Pacific Coast region. A description of the Mount Diablo coal field is given on pp. 563-567, with analyses of the coal.

MANLY, W. L. Death Valley in 1847. San Jose, 1894. 498 pp.

MANSON, MARSDEN. Geological and solar climates: their causes and variations. A thesis, University of California, May, 1893. San Francisco, 1894. 49 pp.

MARCOU, JULES. American geological classification and nomenclature. Cambridge, 1888. 75 pp.

The author remarks on p. 44: "In California, the Cretaceous is limited to the northwest corner of the State, and occupies a small area west of Mount Shasta. The Geological Survey of California, directed by Mr. J. D. Whitney, has called Cretaceous all the Eocene of Fort Tejon and Chico Creek."

——— Geology of North America; with two reports on the prairies of Arkansas and Texas, the Rocky Mountains of New Mexico, and the Sierra Nevada of California, originally made for the United States Government. Zurich, 1858. 144 pp. 7 plates and 2 geological maps.

This work contains:

Chapter I. Resume of a geological reconnoissance extending from Napoleon, at the junction of the Arkansas with the Mississippi, to the Pueblo de los Angeles, in California. The following Californian fossils are described: Fossils of the Tertiary rocks—*Ostria Virginica*, var. *Californica*, Colorado Desert; *Spirifer striatus*, Mart., Shasta County, California.

Chapter V. On the geology of the United States and British Provinces of North America. Geological map of North America. (Extract from Dr. Petermann's Geographischen Mittheilungen, Heft. 6, in 4to. Gotha, 1855.) Contains a notice of the California Desert, or Great Basin, the Cascade Range, the Coast Range.

Chapter VI. Sketch of a geological classification of the mountains of a part of North America. (Extract from Annales des Mines, 5 ser., tome vii, p. 329. Paris, 1855.) Contains description of Coast Range and Sierra Nevada system.

Chapter VII. On the gold of California. (Extract from Bibliotheque Universelle de Geneve. Fevrier, 1855.)

Chapter X. List of maps and memoirs on the geology of California, Oregon, and Washington Territory.

MARIPOSA GOLD COMPANY REPORTS, by Garnet and Wakeley. 1863. 81 pp. col. map.

MARIPOSA ESTATE. By J. C. Fremont and Frederick Billings. London, 1861. 63 pp. map.

Contains letter of Professor Whitney on the mineral wealth of Mariposa Estate.

MARIPOSA ESTATE (THE), its past, present, and future. Comprising the official report of J. Ross Browne upon its mineral resources. Transmitted to Congress, March 5, 1868. New York, 1868. 62 pp.

MARRYAT, FRANK. Mountains and mole hills. New York, 1855. 393 pp.

This is an account of three years in California. Refers to the gold diggings on American River and other places, on p. 210 *et seq.*

MCGARRAHAN, WILLIAM. The quicksilver mines of Panoche Grande. Washington, 1860.

MEMORIAL of the New Idria Mining Company, in the matter of the Panoche Grande Rancho. 1867. 16 pp.

MERRILL, GEORGE P. Stones for building and decoration. New York, 1891. 458 pp.

MINES AND MINING in El Dorado County. The mineral belt, its slates and ores; deep mining, principal mines, etc. San Francisco, 1882. 14 pp.

MOFRAS, DUFLOT DE. Exploration des Territoire de l'Oregon, des Californies et de la Mer Vermeillo, executee pendant les annees 1840, 1841, et 1842. 2 vol. 8vo, avec un Atlas in folio. Paris, 1844. Published by order of the King, under the auspices of the President of the Council and Minister of Foreign Affairs. Vol. 1, 521 pp., 4 plates; vol. 2, 387 pp., 4 plates. Atlas of 26 sheets, maps, and plans.

This author states (Vol. 1, p. 489) that a vein of gold-bearing quartz was worked near the Mission of San Fernando by M. Baric in 1843.

According to De Mofras, the gold of the San Francisquito Rancho was first explored by M. Charles Baric. He gives its distance in the mountains as six leagues to the northward of the Mission of San Fernando, and fifteen leagues from Los Angeles. He further states: "This vein has an extent of six leagues, following the direction of the ravine where it is situated. The gold is found near the surface of the soil, and some pieces weighed two or three drachms." This description would lead one to the opinion that the deposit was a placer one and not a vein, although he uses the word *filon.*

MOFRAS, DUFLOT DE.

According to De Mofras, silver ores occur about two leagues northwest of Cahuenga Rancho, and were not worked for want of mercury. He further observes that the Indians often bring in from the mountains, grains of copper, fragments of opal, and pieces of galena. Mines of gold and silver are also said to have been found about fourteen leagues from San Diego. They were once worked by a man from Guanajuata.

There is a notice of the bitumen near Los Angeles on p. 337, vol. 2. The author states: "Two leagues to the southeast of Los Angeles there are four great sources of asphaltum, situated on a level with the earth in a vast prairie. These springs open in the middle of little pools of cold water, while the bitumen possesses a higher temperature. This water has a mineral taste, which, however, does not prevent animals from drinking it. At sunrise the orifices of these springs are covered by enormous bubbles of asphaltum, often being more than a yard high, and looking like soap bubbles."

MOLITOR, A. P. Essay on California gold. San Francisco, 1860.

This work is said to be a very valuable essay on this subject.

MOWRY, SYLVESTER. The mines of the West. New York, 1864.

MUIR, J. Living glaciers of California. In Harper's Mag., vol. 51, 1875, pp. 769-777.

MURCHISON, SIR R. Siluria: A history of the oldest rocks in the British Isles and other countries; with sketches of the origin and distribution of native gold, the general succession of geological formations, and changes of the earth's surface. 1st edition, London, 1854; geological map and 37 plates of fossils. 2d edition, London, ——. 3d edition, London, 1859; geological map and 41 plates of fossils. 4th edition, London, 1867; geological map and 42 plates. 5th edition, London, 1872; with geological map and atlas of 42 plates.

NORDHOFF, CHARLES. California for health, pleasure, and residence: a book for travelers and settlers. New York, 1873. 255 pp.

Contains notice of gold mining, with a few geological notes.

Old River-Bed Gold Mining Company. Report, 1879. New York, 18 pp.

The mines of this company are situated in Butte County, on the west branch of the Feather River. The report contains reports and sections, by J. H. L. Tuck and R. H. Stretch, on the old Pliocene river-beds of California, with sections of the west branch of Feather River, Butte County, California.

Oregon and California: Account of gold regions, methods of testing gold, etc. 1849. 76 pp. col. map.

Pacific Coast Petroleum Company lands in San Luis Obispo County. 1865. 15 pp.

Palmer, Gen. Wm. J. Report of surveys across the continent in 1867-68, on the 35th and 32d parallels, for a route extending the Kansas Pacific Railway to the Pacific Ocean at San Francisco and San Diego. Philadelphia, 1869. 250 pp. maps.

Contains a report by Dr. C. C. Parry, geologist and naturalist to the Survey, on the mineral districts of central and western Arizona and southern California.

Patterson, L. B. Twelve years in the mines of California. Cambridge, 1862. 108 pp.

Phillips, John Arthur. Notes on the chemical geology of the gold fields of California. London, 1868. tract.

——— Gold mining and gold discoveries made since 1851. London, 1862. tract.

——— The mining and metallurgy of gold and silver. London, 1867. tract.

Phillips, John S. Explorers and assayers' companion; rocks, veins, testing, and assaying. 2 vols. San Francisco, 1879.

Player-Froud, J. G. Six months in California. London, 1872. 164 pp.

A sketch of the general geological features of California is given on pp. 48-57; of mines and mining, on pp. 85-108.

QUICKSILVER: Facts concerning mines in Santa Clara County, California. New York, 1859.

RAMOS, J. M. Informe relativo a los Trabajos ejecutados por la comision exploradora de la Baja California. Mexico, 1886. 222 pp. maps and geological sections.

RAVEN, RALPH. Golden dreams and leaden realities; with introduction by F. Fogie. New York, 1853. 344 pp.

REMOND, A. Report of an exploration and survey of the coal mines of Monte Diablo district. San Francisco, 1861.

Contains small sketch-map in black, showing Tertiary hills.

REVERE, J. W. (Lieut. U. S. Navy). A tour in California, including a description of the gold region and an account of the voyage around Cape Horn, etc. New York, 1849. 305 pp. maps and illustrations.

Chapter XIX treats of the gold regions. It also contains the official report of Colonel Mason, etc.

ROBINSON, FAYETT. California and the gold regions, with a geographical and topographical view of the country, its mineral and agricultural resources, prepared from official and other authentic documents; with a map of the United States and California, showing the routes of the U. S. mail packets to California; also the various overland routes. New York, 1849. 137 pp.

Chapters I and II contain reports of the gold mines, with early accounts of the existence of gold in California.

This book also contains a synopsis of Mr. Larkin's and Colonel Mason's reports.

ROEMER, FRED. Lethæa geognostica oder Beschreibung und Abbildung der fur die Gebirgs-Formationen bezeichnendsten Versteinerungen.

——— I Theil, Lethæa Palæozoica; von Fred Roemer. Stuttgart, 1880-96. Atlas, with 62 plates.

ROGERS, H. D. Sketch of the geology of the United States. Geology of Pennsylvania, vol. 2, pp. 741-775. Philadelphia.

RUXTON, C. F. Life in the far West. New York, 1859. 235 pp.

SEYD, ERNEST. California and its resources. London, 1858. 168 pp. maps.

Contains a chapter on gold mining, and references to other minerals; etc.

SEYMOUR, E. S. Emigrants' guide to the gold mines. Chicago, 1849.

SHALER, N. S. California earthquakes. In Atlantic Monthly, vol. 25, 1870, p. 351.

SHAW, WILLIAM. Golden dreams and waking realities. Being the adventures of a goldseeker in California and the Pacific Islands. London, 1851. 316 pp.

SHINN, CHARLES H. Mining camps: a study on American frontier government. New York, 1885. 316 pp.

SILLIMAN, B. A description of the recently-discovered petroleum region in California, with a report on the same. New York, 1865. 24 pp. 1 pl.

The pamphlet contains an article on the Buena Ventura district, Santa Barbara oil-fields, etc.

——— Report upon the oil property of the Philadelphia and California Petroleum Company. Philadelphia, 1865. 36 pp.

——— On petroleum in California. National Intelligence, February 7, 1866.

SILVERSMITH, J. Metallic and agricultural wealth of the Pacific States. 1863. 150 pp. illustrated.

SIMPSON, HENRY J. The emigrant's guide to the gold mines. New York, 1848.

SOLIGNAC, ARMOND DE. Les mines de la Californie. Limoges, 1852. 98 pp.

This book is a narrative of the author's trip to California. There is very little about the mines, except on page 53, where he gives a short description of the placers on the American River.

STETEFELDT, C. A. The lixiviation of silver ores with hyposulphite solutions, with special reference to the Runell process. New York; 1888. 223 pp.

STEWART, W. M. Lecture on the mineral resources of the Pacific States. New York, 1865.

STILLMAN, J. D. B. Seeking the Golden Fleece. San Francisco, 1877. 352 pp. illustrated.

This work is in the shape of a journal. On page 157 the author gives an account of mines, etc.

STONE, R. C. Gold and silver mines of America. New York.

TAYLOR, BAYARD. El Dorado: Adventures in the path of empire. New York, 1850. illustrated. 2 vols., 251, 247 pp.

In the appendix there is a report of Hon. T. Butler King, on the metallic and mineral wealth of the State. pp. 201-247.

TAYLOR, R. C. Statistics of coal. The geographical and geological distribution of mineral combustibles or fossil fuel; including, also, notices and localities of the various mineral bituminous substances employed in arts and manufactures. Illustrated by maps and diagrams, etc. Philadelphia, 1848.

Under the heading of Upper California, the author states: "In the spring of 1847, a new coal mine was discovered near San Luis Obispo, N. Lat. 35 deg. There are now three mines within three hundred miles of Monterey. Asphaltum and petroleum occur abundantly in western California."

——— *Same.* Second edition, revised and brought down to 1854, by S. S. Haldeman. Philadelphia, 1855.

Notes a report of Dr. Le Conte on the discovery of coal, twelve miles north of San Diego, in 1851.

TEGOBORSKI, M. L. DE. Essai sur les consequences eventuelle de la deconverte des gites auriferes en Californie et en Australie. Paris, 1853. 199 pp.

THE PIUTE COMPANY OF CALIFORNIA AND NEVADA; organized April 13, 1869, incorporated June 30, 1870. San Francisco, 1870. 23 pp. 21 plates, and map.

This report contains excellent maps of the mining region, in San Bernardino County, California, and the adjoining Yellow Pine District, in Nevada. A few geological notes are given in the descriptions of the different mines.

THE NEW ALMADEN MINES. Letters from the San Francisco "Daily Herald," as published on the mornings of the 15th, 17th, and 18th of December, 1858. San Francisco, 1858. pamphlet.

THORNTON, J. QUINN. Oregon and California in 1848, with an appendix including recent and authentic information on the subject of the gold mines of California and other valuable matter of interest to the emigrant, etc. New York, 1849. 2 vols.

The appendix to vol. 2, pp. 267-379, contains an account of the gold region of California, which is principally a copy of the official reports made in 1848.

TRASK, DR. JOHN B. Earthquakes in California from 1800 to 1863. San Francisco, 1864. 26 pp.

Dr. Trask also published several articles on the same subject in the Proceedings of the California Academy of Sciences.

TRENY. La Californie devoilee du verites irrecusable appuyees sur le nombreux temoignages sur cette partie du globe. Paris, 1850. 60 pp.

This pamphlet was issued in three editions.

TRIPP, D. K. Report of the examination and survey of the Sonoma Pacific coal mines. Report 1888. San Francisco, 1888.

These mines are located about two and one half miles from Santa Rosa. The report gives several analyses of the coal, by D. K. Tripp.

TURRILL, CHARLES B. First volume—California notes. San Francisco, 1876. 232 pp.

This book contains a chapter on the topography of California, with notes on the gold mines and geology of gold section.

TYSON, J. L. Diary in California. ~~Baltimore (?)~~ NY Appleton, 1850. 92 pp.

UPHAM, SAMUEL G. Notes of a voyage to California via Cape Horn; also, scenes in El Dorado, 1849 and 1850. Philadelphia, 1878. 594 pp.

VEATCH, JOHN A. Letter from Dr. John A. Veatch to the Borax Company of California, June 28, 1857. San Francisco, 1857. 16 pp.

Dr. Veatch discovered borax at Borax Lake, Lake County, in 1856.

VIVIAN, A. P. Wanderings in the western land. London, 1879.

Contains geological map from Colorado to the Pacific. Scale, 45 miles to the inch.

WALTON, DANIEL. Facts from the gold region. Boston, 1849.

WASSON, JOS. Bodie and Esmeralda. Being an account of the revival of affairs in two singularly interesting and important mining districts, including something of their past history, and the gist of the reports of Profs. Benj. Silliman and W. P. Blake, the late J. Ross Browne, R. H. Stretch, State Mineralogist, and H. R. Whitehill; also detailed descriptions of mines most developed, tunnels, mills, etc. San Francisco, 1878. 60 pp.

WELLS, W. V. How we get gold in California. In Harper's Mag., vol. 20, 1860, p. 598. 19 pp.

WERTH, JOHN J. A dissertation on the resources and policy of California: minerals, agriculture, and commerce, including a plan for the disposal of the mineral lands. Benicia, 1851. 87 pp.

WESTON, S. Four months in the mines of California. Providence, 1854.

WHITNEY, J. D. The metallic wealth of the United States described and compared with that of other countries. Philadelphia, 1854. 510 pp.

An account of the gold, with the geology of this region, in California, is given on pp. 134-149.

——— Contributions to American Geology, vol. 1. Cambridge.

This was also published by Mus. Comp. Zoology, Memoirs vol. 6, 1880, as The auriferous gravels of the Sierra Nevada of California.

——— Contributions to American Geology, vol. 2.

This volume contains Whitney's Climatic changes of later geological times, and Lesquereux's Fossil plants of the auriferous gravels, published in vols. 6 and 7, Mus. Comp. Zoology, Memoirs, 1880-82.

——— Letter of Professor Whitney, State Geologist of California. In the Mariposa Estate, London, 1861, pp. 5-7.

WOODS, DANIEL B. Sixteen months at the gold diggings. New York, 1851. 199 pp.

The appendix contains a letter from Prof. Edward Hitchcock on the gold mines of California.

WRIGHT, G. F. The Ice Age in North America, and its bearings upon the antiquity of man, by G. Frederick Wright; with an appendix on the probable cause of glaciation, by Warren Upham. New York, 1889. 622 pp. maps and many illustrations.

The author notices the existing glaciers of California, ancient glaciers, the terminal moraines of California, the pre-historic man in California, ancient river-beds, etc.

WYLD, J. Guide to California. London, 1849.

——— Notes on the distribution of gold throughout the world, including Australia, California, and Russia. London, 2d edition, 1851; 3d edition, 1853.

——— Geographical and mineralogical notes to accompany Wyld's map of the gold regions. London, 1849.

YALE, GREGORY. Legal titles to mining claims and water rights in California. San Francisco, 1867. 452 pp.

This legal work gives the history of early mining legislation in the United States, and especially that of California.

YALE, CHARLES GREGORY. "Glossary of mining terms and terms connected with mining, including Spanish phrases used in California," in Gregory Yale's legal work on "Mining claims and water rights," San Francisco, 1867; translations of Spanish of Manuel Castanares on the "Discovery of gold in California in 1844," in appendix of same work; chapter on "Mining inventions and improvements," p. 32 *et seq.*, Report of U. S. Mining Commissioner R. W. Raymond, 1872; special chapters in same report annually to 1876; special chapter in Report of U. S. Mint Director Burchard, 1880; same report, 1881, chapter on "Mining machinery in California"; same report, 1882, chapter on "Miscellaneous mining improvements"; textual chapters on "California mines," in annual reports on "Production of gold and silver in the United States," by U. S. Mint Director Leech for 1889, 1890, 1891; statistical matter and textual chapters on mines of California, Alaska, Oregon, and Washington, in annual reports of U. S. Mint Director Preston on "Production of gold and silver in the United States," for years 1893, 1894, 1895, 1896; statistical matter and textual chapters on mines of California and Alaska in annual reports of U. S. Mint Director Roberts on "Production of gold and silver in the United States," for years 1897, 1898, 1899, 1900, 1901, 1902; California mineral statistics and certain textual matter relating to California mineral substances, in annual reports of Albert Williams, Jr., and Dr. David T. Day, Division of Mineral Resources, U. S. Geological Survey, from 1882 to 1902; very many articles and annual reviews on California mining, in "Mining and Scientific Press" of San Francisco while editor of that journal from August, 1871, to July, 1893; statistics and portion of chapter on gold and silver in California in volume on "Mineral Industry," U. S. Census Report 1890; illustrated article on California mining, Overland Monthly magazine; weekly articles on California mines in San Francisco Call, 1893 to 1895; weekly articles on California mines in San Francisco Examiner, 1895 to 1898; weekly news summary on California mines and weekly letter on "Mining in California," Engineering and Min-

YALE, CHARLES GREGORY.

ing Journal of New York, 1901 to 1903; description of processes of handling gold and silver at U. S. Mint in San Francisco, Overland Monthly magazine, December, 1901; author of pamphlet (with map) on "Pacific Coast harbors," San Francisco, 1881; Bulletins Nos. 7, 8, 12, 13, 14, 17, 21, 25, and 28, California State Mining Bureau, on "Mineral productions of California" for the several years; Bulletins Nos. 22, 26, and 29, California State Mining Bureau, "Showing mineral productions of California" for fourteen, for fifteen, and for sixteen years respectively; table "Showing total gold product of California since 1848 according to different authorities," published by State Mining Bureau; report to Board of Examiners on report of State Mineralogist for 1892, in report of that date; chapter on "The mineral industry of California" (illustrated), part of chapter on "Fineness of California gold," and chapter on "Mining debris legislation," in souvenir edition of "California Mines and Minerals," published by the California Miners' Association for the California meeting of the American Institute of Mining Engineers, San Francisco, 1899.

PART VI.

CARTOGRAPHY OF CALIFORNIA.

INTRODUCTORY REMARKS.

The world's history and its civilization are closely proportional to the accurate mapping of the territory. In early settlements only rude diagrams are made to meet the wants of the time, but as civilization and population increase a wider knowledge of the geography and topography is necessary to meet the requirements of greater traffic and improvements. Hence, the mapping of any country is a progressive work. As the country becomes populated and political divisions are made, detailed maps are required to construct railroads, geological surveys, wagon roads, and other improvements, and triangulation is extended over the country to produce a map to meet these wants.

Dr. J. C. Rowell, of the State University, made a catalogue of the maps of California in the year 1887, which was published in Library Bulletin No. 9. Its object was to catalogue all the maps of the State, including county and other maps, for which he made an endless research in the libraries, official documents, railroad and real estate offices, mining companies, etc. This added much to our knowledge in making up this bulletin.

The work is endless, and many maps of the State have not been catalogued. The maps of early voyagers and overland explorers have not been included, as their enumeration would have extended the list to double its limits. Those of the former have been published in the following:

1. H. H. Bancroft's History of the Northwest Coast, vol. 1, chap. 1-10. This contains an extended account of the progress of discovery on the coast as well as reproductions of numerous early maps.

2. Justin Winsor's The Kohl collection of early maps, belonging to the Department of State, Washington, U. S. A. This catalogue commenced publication in the Harvard University Bulletin, vol. 3, p. 171, and was subsequently issued as

Harvard Library Bibliographical Contribution, No. 19. Section IX relates to the northwest coast.

3. Jules Marcou and John B. Marcou. Catalogue of geological maps of America, 1752-1881. Washington, 1884. (Bulletin No. 7 of the U. S. Geological Survey.)

4. British Museum. Catalogue of maps, plans, and charts. 2 v. London, 1886.

5. Richard Bliss. Classified index to the maps in Petermann's Geographische Mittheilungen, 1855-81. (Harvard University Bulletin, vol. 3, p. 344; subsequently issued as Bibliographical Contribution, No. 16.)

6. Richard Bliss. Classified index to the maps contained in the publications of the Royal Geographical Society and in associated serials, 1830-83. (Harvard University Bulletin, vol. 4, p. 47; subsequently issued as Bibliographical Contribution, No. 17.)

7. Richard Bliss. Classified index to the maps in the publications of the Geological Society of London, 1811-85. (Boston Public Library Bulletin, vol. 7.)

8. Topographical maps, profiles, and sketches to illustrate the various reports of surveys for railroad routes from the Mississippi River to the Pacific Ocean, vol. 11; by Lieut. G. K. Warren. Washington, 1855. 120 pp., 4 maps.

9. Report upon U. S. Geographical Surveys west of the 100th meridian; by Capt. George M. Wheeler. vol. 1, Geographical report. Washington, 1889. 780 pp., 38 plates, 3 maps.

Unless otherwise stated, the notes, titles, etc., contained in this Bulletin have been copied directly from the maps themselves by the compiler; where it was impossible to obtain the maps, official and other information was used so as to complete the list.

PART VI.

CARTOGRAPHY OF CALIFORNIA.

GEOLOGICAL MAPS OF NORTH AMERICA IN GENERAL, INCLUDING THE STATES OF THE PACIFIC COAST.

1853. Carte geologique des Etats Unis et des provinces Britanique de l'Amerique du Nord; by Jules Marcou. Accompanying Voyage dans l'Amerique du Nord en 1853 et 1854; par G. Lambert. Bruxelles, 1855.

A German edition of this map was published in Petermann's Geog. Mittheilungen, vol. 1. Gotha, 1855.

This was the first geological map comprising the whole country from the Atlantic to the Pacific Ocean.

1853. Geological map of the United States and British provinces of North America (with explanatory text and geological sections). Boston, 1853. 92 pp., 8 plates. Scale, 90 m. to 1 in.

Other editions appeared in Bull. Soc. Geol. France, 2d ser., vol. 12, 1855, pp. 813-936. Annales des Mines, vol. 7, p. 320, pl. 9. Geology of North America; Zurich, 1858. La vie souterraine ou les mines et mineurs, par L. Simonin; Paris, 1867; plates 10, 11, 14. Physikalische karten Geologie; Vienna, 1872.

1856. Geological map of the United States and British North America; by H. D. Rogers. Accompanying Physical atlas of natural phenomena; by Keith Johnston, plate 8. Edinburgh, 1856.

1857. Map illustrating the general geological features of the country west of the Mississippi; by James Hall and J. P. Lesley. Accompanying Emory's Mexican Boundary Survey, vol. 1, part 2. Washington, 1857.

1872. Geological map of the United States; compiled for the Ninth Census by C. H. Hitchcock and Wm. P. Blake. Washington, 1872.

The same map was published in Raymond's Statistics of mines, States west of the Rocky Mountains; Washington, 1873. Also in Statistical atlas of the United States Ninth Census, plates 13-14; Washington, 1874. Scale, 1 : 715,000. It was distributed also at the Centennial Exhibition at Philadelphia, 1876, with the special report of Smithsonian Institution. It was issued in Gray's Atlas of the United States and of the World, 1877.

The Utah, Nevada, California, and Oregon portions were compiled by William P. Blake from personal observation, Pacific railroad reports, California geological reports by Whitney, Geology of the fortieth parallel by Clarence King, etc.

1879. Geological sketch of the United States; by James MacFarlane. Accompanying an American railroad guide giving the geological formation of every railway station. New York, 1879. p. 216.

1879. Geological map from Colorado to the Pacific Ocean; by A. P. Vivian. Accompanying Wanderings in the Westland. London, 1879.

1881. Geological map of the United States; by C. H. Hitchcock. New York, 1881. Scale, 20 m. to 1 in.

This is the largest map yet published, being 13 feet long and 8 feet wide. A pamphlet accompanies the map. The California portion of the map is colored from material furnished by William P. Blake, using as a base his geological map, Pacific railroad reports (vol. 5), Hitchcock's census map, and the results of recent explorations.

1883. Geological map of the United States; compiled from various official sources. Accompanying Wisconsin Geological Survey, vol. 1, part 1, plate 3, p. 79. Madison, 1883.

1884. Map of the United States, exhibiting the present status of knowledge relating to areal distribution of geologic groups; by W. J. McGee. Accompanying fifth annual report of U. S. Geological Survey. Washington, 1884.

1886. Geological map of the United States and part of Canada; compiled by C. H. Hitchcock for the American Institute of Mining Engineers.

GEOLOGICAL MAPS OF CALIFORNIA.

1831. Geological map of San Francisco Bay; a map of the headland embracing San Francisco Bay. Accompanying Narrative of a voyage to the Pacific and Behring's Strait, etc., under the command of Capt. F. W. Beechey. London, 1831.

In the volume on zoology, by Prof. Buckland, there are several references to the geology of the vicinity of San Francisco.

1850. Geological reconnoissance in California; by P. T. Tyson. Accompanying Tyson's Report on the Geology of California. Washington, 1850. Not colored, with mineral indications.

1853. Topographical map of the mineral districts of California, being the first map ever printed from actual survey; by John B. Trask. San Francisco, 1853.

1856. Geological map of the vicinity of San Francisco; by Wm. P. Blake. Accompanying Pacific Railroad Survey, vol. 5, p. 145. Washington, 1856.

1856. Geological map of the entrance of San Francisco Bay; by Wm. P. Blake. Scale, 1:150,000. Accompanying U. S. Coast Survey, 1855, p. 376. Washington, 1856.

1856. Geological map and section of Punta de los Reyes; by Wm. P. Blake. Scale, 1:150,000. Accompanying U. S. Coast Survey, 1855, p. 376. Washington, 1856.

1856. Geological map of San Diego and the adjoining coast; by Wm. P. Blake. Scale, 1:608,228. Accompanying U. S. Coast Survey, 1855, p. 376. Washington, 1856.

1856. Geological map of Point Pinos and Monterey Bay; by Wm. P. Blake. Scale, 1:150,000. Accompanying U. S. Coast Survey, 1855. Washington, 1856.

1856. Geological map of the country between San Diego and Colorado River. Scale, 1:608,228. Accompanying Pacific Railroad Survey, vol. 5, p. 228. Washington, 1856.

1856. Geological map of the Tejon Pass and Canada de la Uvas and the vicinity, including the Pass of San Francisquito and Williamson's Pass; by Wm. P. Blake. Accompanying Pacific Railroad Survey, vol. 5, p. 197. Washington, 1856.

1856. Geological map of a part of the State of California explored in 1853 by Lieut. R. S. Williamson; by Wm. P. Blake. Accompanying Pacific Railroad Survey, vol. 5. Washington, 1856.

1857. Geological plan of the Coast Range of California from San Francisco Bay to Los Angeles, explored in 1855-56 by Lieut. John G. Parks; by Thomas Antisell. Scale, 24 m. to 1 in. Accompanying Pacific Railroad Survey, vol. 7, p. 266. Washington, 1857.

1861. Map of Monte Diablo district (no title); by A. Remond. Accompanying Report expl. and survey coal mines of Monte Diablo district. San Francisco, 1861.

Sketch showing Tertiary hills.

1867. Map of the region adjacent to the Bay of San Francisco, 1867; by J. D. Whitney. Scale, 2 m. to 1 in. Accompanying Report State Geologist.

This map covers an area of 4,248 square miles. The second edition, 1868, embraces in whole or in part the counties of San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, Solano, Sacramento, Napa, Sonoma, and also Marin. Published in 1890.

1870. Map of the Yosemite Valley; by Mr. Gardner. Scale, 1 m. to 2 in. Yosemite Guide Book, 1870.

In the third edition this map was reduced to a scale of 1 m. to 1 in.

1871. Map of central California, by the State Geological Survey. First sheet S. W. quarter. Scale, 6 m. to 1 in.

1872. Topographical map of central California, together with a part of Nevada. Scale, 6 m. to 1 in. Accompanying Geol. Sur. Cal., 1872. J. D. Whitney, State Geologist.

Nevada is taken from Clarence King's survey. The sheets are numbered III and IV, being southeast and southwest sections.

1872. Topographical map of central California, etc.

Sheet II, the northeast section, was reported by the State Geologist in 1873 and again in 1879 to be completed, and the northwest section to lack one season's work. Published by Bien, New York.

1873. Map of California and Nevada, 1873. State Geol. Sur. of California, J. D. Whitney, State Geologist. Drawn by F. von Leicht and A. Craven. Scale, 18 m. to 1 in.

The second edition, revised by Hoffmann & Crane and issued by authority of the Regents of the State University of California, 1874.

Third edition, published by W. D. Walkup & Co., 1878.

Fourth edition, published by Walkup & Co., 1887.

In the Report of Progress for 1873, Professor Whitney mentions that a smaller map of California, scale 36 m. to 1 in., "has been engraved without hillshading." This map was not published.

Portions of the western slope of the Sierra Nevada, based on the work of the Geological Survey, are mapped in Whitney's Auriferous gravels of the Sierra Nevada. Cambridge, 1880.

1876. Part of eastern California, southeastern Nevada, northwestern Arizona, and southwestern Utah; by G. K. Gilbert and A. R. Marvin. Scale, 8 m. to 1 in. Accompanying Geological atlas U. S. Geol. Sur. west 100th meridian; by George M. Wheeler. New York, 1876.

1879. Map of River Tunnel on Mariposa Estate, showing the course of vein and workings up to August 5, 1877; by A. J. Bowie, Jr. Accompanying Trans. Am. Inst. Min. Engs., vol. 6, 1878, plate 1, fig. 1.

1879. Surroundings of River Tunnel, Mariposa Estate; by A. J. Bowie. Accompanying Trans. Am. Inst. Min. Engs., vol. 6, 1878, plate 1, fig. 6.

1880. Map of the region near Gibsonville; by C. W. Hendel. Scale, 1,200 feet to the inch. In Mem. Mus. Comp. Zool., vol. 6, p. 450, plate T. Cambridge, 1880.

1880. Map of the Tertiary auriferous gravel deposits lying between the middle fork of the American and the Middle Yuba rivers; by A. Bowman, W. H. Pettee and W. A. Goodyear. Scale, 1 m. to 1 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. In 2 sheets.

1880. Map showing the extent of the hydraulic mining operations near Gold Run, Dutch Flat, Little York, You Bet, Chalk Bluffs, Red Dog, Hunt's Hill, and Quaker Hill, on Bear River, and Canon, Steep Hollow, and Greenhorn creeks; by W. H. Pettee and A. Bowman. Scale, 1 m. to 4 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880.

1880. Map of the Smartsville gravels; by A. Bowman. Scale, 1 m. to 7 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. Plate M.

1880. Diagram showing the position of the Table Mountain lava flow of Tuolumne County; by J. D. Whitney. Scale, 2 m. to 1 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. Plate D.

1880. Plan of the Spanish Peak gravel deposit; by J. D. Whitney. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. Plate K.

1880. Map of the mining district adjacent to Forest City; by J. D. Whitney. Scale, 1 m. to 1 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. Plate Q, p. 432.

1880. Map to accompany the description of a portion of the region drained by Slate, Canon, and Goodyear creeks in Sierra and Plumas counties; by J. D. Whitney. Scale, 2 m. to 1 in. In Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880. Plate R, p. 444.

1880. Map of Poverty Hill Scale's Diggings, and vicinity; by C. W. Hendell. Scale, 1 m. to 1.5 in. Accompanying The Auriferous gravels of the Sierra Nevada, by J. D. Whitney. Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880.

1880. Sketch map showing the distribution of the volcanic and gravel formations over a portion of Placer and El Dorado counties. Accompanying The Auriferous gravels of the Sierra Nevada, by J. D. Whitney. Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880.

1880. Distribution of the volcanic formations and gravels near Placerville. Scale, 1 m. to 1 in. Accompanying The Auriferous gravels of the Sierra Nevada, by J. D. Whitney. Mem. Mus. Comp. Zool., vol. 6. Cambridge, 1880.

1883. Carte geologique de la Californie, 1854-75; par Jules Marcou. Scale, 1:600,000. Accompanying Note sur la geologie Californie. Bull. Soc. Geol. France, 3d ser., vol. 11, 1883, p. 407.

1893. Sketch map of California, to illustrate the relations of the metamorphic and granitic rocks of the Coast Range to those of Sierra Nevada; by Harold W. Fairbanks. Am. Geol., vol. 11, 1893, no. 2, plate IV.

1897. Geological map of Santa Catalina Island; by W. S. T. Smith. Scale, 1:200,000. To accompany Cal. Acad. Sci. Proc., 3d ser., Geology, vol. 1, no. 1, 1897.

1902. Geological map of a portion of the Berkeley hills; by Andrew C. Lawson and Charles Palache. Scale, 1:12,000. Bull. Univ. of Cal., vol. 2, no. 12. Berkeley, 1902.

GEOLOGIC ATLAS OF THE UNITED STATES.

The United States Geological Survey has published the following folios on California:

Folio No. 3, Placerville. Topographic sheet, scale 1:125,000; historical geology sheet; economic geology sheet; structural geology sheet.

This folio includes the territory between the meridians 120 deg. 30 min. and 121 deg. west longitude and the parallels 38 deg. 30 min. and 39 deg. north latitude. Portions of Amador County.

Folio No. 5, Sacramento. Topographic sheet, scale 1:125,000; historical geology sheet; economic geology sheet; structural geology sheet.

This folio includes the territory between the meridians 121 deg. and 121 deg. 30 min. west longitude and the parallels 38 deg. 30 min. and 39 deg. north latitude. Portions of Sacramento County.

Folio No. 5, Sacramento.

The name of "Ione formation" was used by Lindgren for a bed of clay and sand with layers of lignite that occurs along the foothills of the Sierra Nevada, especially in the gold belt region.

Folio No. 11, Jackson. Topographic sheet, scale 1:125,000; historical geology sheet; economic geology sheet; structural geology sheet.

This folio includes the territory between the meridians 120 deg. 30 min. and 121 deg. west longitude and the parallels 38 deg. and 38 deg. 30 min. north latitude. Portions of Tuolumne County.

Folio No. 15, Lassen Peak. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet; views of volcanic activity.

This folio includes territory bounded by the 121st and 122d meridians and the 40th and 41st parallels. Length, 68.99 miles; mean width, 52.68 miles; area, 3,634.40 square miles. Portions of Shasta, Tehama, Butte, Plumas, and Lassen counties.

The name of "Grizzly formation" was given by Mr. Diller to the silurian beds at Grizzly mountains of Plumas County; and that of "Cedar formation" to a belt of slates and limestones on the north fork of Feather River.

Folio No. 17, Marysville. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet.

This folio includes the territory between the meridians 121 deg. 30 min. and 122 deg. and the parallels 39 deg. and 39 deg. 30 min. Area, 34.5 miles long and 27 miles wide. Portions of Butte, Yuba, Sutter, and Colusa counties.

Folio No. 18, Smartsville. Topographic sheet, scale 1:125,000; geological sheet; economic geology sheet.

This folio contains the territory between the meridians 121 deg. and 121 deg. 30 min. west longitude and the parallels 39 deg. and 39 deg. 30 min. north latitude. Area, 34.5 miles long and 27 miles wide. Portions of Butte, Yuba, Sierra, Nevada, and Placer counties.

Folio No. 29, Nevada City (special). 3 topographical maps, scale 1:125,000; 3 economic maps; structural sections.

The three maps contained in this folio illustrate in detailed manner the topography and geology of the gold mining district of Grass Valley and Nevada City.

Folio No. 31, Pyramid Peak. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet; structural sections.

The Pyramid Peak quadrangle includes the territory between the meridians 120 deg. and 120 deg. 30 min. west longitude and the parallels 38 deg. 30 min. and 39 deg. north latitude. 34.5 miles long and 27 miles wide, and contains 931.5 square miles. Portions of Placer, El Dorado, Amador, Calaveras and Alpine counties; eastern El Dorado County occupying the central and main portion of it.

Folio No. 37, Downieville. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet; structural sections, with special illustrations.

This folio includes the territory between the meridians 120 deg. 30 min. and 121 deg. west longitude and the parallels 29 deg. and 30 deg. 40 min. north latitude. Area, 919 square miles. The map of the gold belt extends over portions of Sierra and Plumas counties.

Folio No. 39, Truckee. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet; structural sections.

This folio includes the territory between the meridians 120 deg. and 120 deg. 30 min. west longitude and the parallels 39 deg. and 39 deg. 30 min. north latitude. Area, 925 square miles. Portions of Nevada County.

Folio No. 41, Sonora. Topographic sheet, scale 1:125,000; areal geology sheet; economic geology sheet; structural sections.

This folio includes the territory between the meridians 120 deg. and 120 deg. 30 min. west longitude and the parallels 37 deg. 30 min. and 38 deg. north latitude. Area, 944 square miles. Portions of Stanislaus, Merced, Tuolumne, and Mariposa counties.

Folio No. 43, Bidwell Bar. Topographic sheet; historical geology; economic geology; special illustrations.

This folio comprises the territory between the meridians 121 deg. and 121 deg. 30 min. west longitude and the parallels 39 deg. 30 min. and 40 deg. north latitude. Area, 918 square miles; 34.5 miles long and 26.5 miles wide. The larger part is in Butte and Plumas counties.

Folio No. 51, Big Trees. Topographic sheet, scale 1:125,000; historical geology sheet; economic geology sheet; special illustrations.

This folio comprises the territory between the meridians 120 deg. and 120 deg. 30 min. west longitude and the parallels 38 deg. and 38 deg. 30 min. north latitude. 33¼ miles long and 27¼ miles wide, containing about 938 square miles. Portions of Amador, Alpine, Calaveras, and Tuolumne counties.

Folio No. 63, Mother Lode. Topographic sheet, scale 1:63,360; claim sheets; economic geology sheets Nos. 1 and 2; structural sections sheet.

The folio comprises a narrow belt of country extending in nearly northwest and southeast direction along the western foothill region of the Sierra Nevada. Length, 70 miles; width, 6½ miles. Portions of Amador, Calaveras and Tuolumne counties, and a smaller part of Mariposa County.

Folio No. 66, Colfax. Topographic sheet, scale 1:125,000; historical geology sheet; economic geology sheet; structural section sheet.

This folio includes the territory between 120 deg. 30 min. and 121 deg. west longitude and 39 deg. and 39 deg. 30 min. north latitude. Area, 34.5 miles long and nearly 27 miles wide, containing 925 square miles. It embraces large portions of Sierra, Nevada, and Placer counties as well as a little of El Dorado County.

The following is a list of topographic maps of California:

Alturas, lat. 41 deg., long. 120 deg. Scale, 1:250,000. (Lassen and Modoc counties.)

Anaheim, lat. 33 deg. 45 min., long. 117 deg. 45 min. Scale, 1:62,500. (Los Angeles, Orange, and San Bernardino counties.)

Arroyo Grande, lat. 35 deg. 15 min., long. 120 deg. 30 min. Scale, 1:62,500. (San Luis Obispo County.)

Banner Hill, lat. 39 deg. 17 min., long. 120 deg. 5 min. Scale, 1:14,400. (Nevada County.)

Bidwell Bar, lat. 39 deg. 30 min., long. 121 deg. Scale, 1:125,000. (Butte, Plumas, and Yuba counties.)

Big Trees, lat. 38 deg., long. 120 deg. Scale, 1:125,000. (Alpine, Amador, Calaveras, and Tuolumne counties.)

Calabasas, lat. 34 deg., long. 118 deg. 30 min. Scale, 1:62,500. (Ventura, Los Angeles, and San Bernardino counties.)

Camp Mohave (Ariz., Nev. and Cal.), lat. 35 deg., long. 114 deg. Scale, 1:250,000. (San Bernardino County.)

Capistrano, lat. 33 deg., long. 117 deg. 30 min. (Orange and San Diego counties.)

Cayucos, lat. 35 deg. 30 min., long. 120 deg. 45 min. Scale, 1:62,500. (San Luis Obispo County.)

Chico, lat. 39 deg. 30 min., long. 121 deg. 30 min. Scale, 1:125,000. (Butte and Tehama counties.)

List of topographic maps of California.

Colfax, lat. 39 deg., long. 120 deg. 30 min. Scale, 1 : 125,000. (Nevada, Placer, and Sierra counties.)

Concord, lat. 37 deg. 45 min., long. 122 deg. Scale, 1 : 62,500. (Alameda and Contra Costa counties.)

Corona, lat. 33 deg. 30 min., long. 117 deg. 30 min. Scale, 1 : 125,000. (Los Angeles, Orange, Riverside, and San Bernardino counties.)

Cucamonga, lat. 34 deg., long. 117 deg. 30 min. Scale, 1 : 62,500. (Los Angeles and San Bernardino counties.)

Dardanelles, lat. 38 deg., long. 119 deg. 30 min. Scale, 1 : 125,000. (Alpine, Mono, and Tuolumne counties.)

Deep Creek, lat. 34 deg. 15 min., long. 117 deg. Scale, 1 : 62,500. (San Bernardino County.)

Downey, lat. 33 deg. 45 min., long. 118 deg. Scale, 1 : 62,500. (Orange and Los Angeles counties.)

Downieville, lat. 39 deg. 30 min., long. 120 deg. 30 min. Scale, 1 : 125,000. (Plumas and Sierra counties.)

El Cajon, lat. 33 deg., long. 116 deg. 45 min. Scale, 1 : 62,500. (San Diego County.)

Elsinore, lat. 34 deg., long. 117 deg. Scale, 1 : 125,000. (Orange, Riverside, and San Diego counties.)

Escondido, lat. 33 deg., long. 117 deg. Scale, 1 : 62,500. (San Diego County.)

Fair Oaks, lat. 38 deg. 30 min., long. 121 deg. 15 min. (Placer, Sacramento, and Sutter counties.)

Fernando, lat. 34 deg. 15 min., long. 118 deg. 15 min. Scale, 1 : 62,500. (Los Angeles County.)

Genesee, lat. 40 deg. 1 min., long. 120 deg. 41 min. Scale, 1 : 31,680. (Plumas County.)

Grass Valley Special, lat. 39 deg. 50 min., long. 121 deg. 1 min. Scale, 1 : 14,400. (Nevada County.)

Haywards, lat. 37 deg. 30 min., long. 122 deg. Scale, 1 : 62,500. (Alameda and San Mateo counties.)

Hesperia, lat. 34 deg. 15 min., long. 117 deg. 15 min. Scale, 1 : 62,500. (San Bernardino County.)

Honey Lake, lat. 40 deg., long. 120 deg. Scale, 1 : 250,000. (Lassen and Plumas counties.)

Indian Valley, lat. 40 deg., long. 120 deg. 40 min. Scale, 1 : 62,500. (Plumas County.)

Jackson, lat. 38 deg., long. 120 deg. 30 min. Scale, 1 : 125,000. (Amador and Calaveras counties.)

Karquines, lat. 30 deg., long. 122 deg. Scale, 1 :62,500. (Contra Costa, Napa, and Solano counties.)

Lake Tahoe, lat. 38 deg. 30 min., long. 119 deg. 30 min. Scale, 1 : 125,000.

Las Bolsas, lat. 33 deg. 30 min., long. 118 deg. Scale, 1 : 62,500. (Orange County.)

Lassen Peak, lat. 40 deg., long. 121 deg. Scale, 1 : 250,000. (Butte, Lassen, Plumas, Shasta, and Tehama counties.)

Lodi, lat. 38 deg., long. 121 deg. Scale, 1 : 125,000. (Amador, Sacramento, and San Joaquin counties.)

Los Angeles, lat. 34 deg., long. 118 deg. Scale, 1 : 62,500.

List of topographic maps of California.

Markleeville (Cal. and Nev.), lat. 38 deg. 30 min., long. 119 deg. 30 min. Scale, 1 : 125,000. (Alpine, El Dorado, and Mono counties.)

Marysville, lat. 39 deg., long. 121 deg. 30 min. Scale, 1 : 125,000. (Butte, Colusa, Sutter, and Yuba counties.)

Modoc Lava-bed, lat. 41 deg., long. 121 deg. Scale, 1 : 250,000. (Lassen, Modoc, Shasta, and Siskiyou counties.)

Mother Lode sheet. Scale, 1 : 63,360. Sheets Nos. 1 and 2. Sheet No. 1, Amador and Calaveras counties; No. 2, Calaveras, Tuolumne, and Mariposa counties.

Mt. Diablo, lat. 37 deg. 45 min., long. 121 deg. 45 min. Scale, 1 : 62,500. (Alameda and Contra Costa counties.)

Mt. Hamilton, lat. 37 deg. 15 min., long. 121 deg. 30 min. Scale, 1 : 62,500. (Alameda and Santa Clara counties.)

Mt. Lyell, lat. 37 deg. 30 min., long. 119 deg. Scale, 1 : 125,000. (Fresno, Madera, Mariposa, Mono, and Tuolumne counties.)

Mt. Pinos, lat. 34 deg. 30 min., long. 119 deg. Scale, 1 : 90,000. (Kern, Santa Barbara, and Ventura counties.)

Napa, lat. 38 deg., long. 122 deg. Scale, 1 : 125,000. (Contra Costa, Marin, Napa, Solano, Sonoma, and Yolo counties.)

Nevada City Special, lat. 39 deg. 13 min. 50 sec., long. 121 deg. Scale, 1 : 14,400. (Nevada County.)

Oceanside, lat. 33 deg., long. 117 deg. 15 min. Scale, 1 : 250,000. (San Diego County.)

Palo Alto, lat. 37 deg. 15 min., long. 122 deg. Scale, 1 : 62,500. (Alameda, San Mateo, Santa Clara, and Santa Cruz counties.)

Pasadena, lat. 34 deg., long. 118 deg. Scale, 1 : 62,500. (Los Angeles County.)

Placerville, lat. 38 deg. 30 min., long. 120 deg. 30 min. Scale, 1 : 125,000. (Amador, El Dorado, and Placer counties.)

Pomona, lat. 34 deg., long. 117 deg. 45 min. Scale, 1 : 62,500. (Los Angeles and San Bernardino counties.)

Port Harford, lat. 35 deg. 15 min., long. 120 deg. Scale, 1 : 62,500. (San Luis Obispo County.)

Pyramid Peak, lat. 38 deg. 30 min., long. 120 deg. Scale, 1 : 125,000. (Alpine, Amador, El Dorado, and Placer counties.)

Randsburg, lat. 35 deg. 15 min., long. 117 deg. 30 min. Scale, 1 : 62,500. (Kern and San Bernardino counties.)

Red Bluff, lat. 40 deg., long. 122 deg. Scale, 1 : 250,000. (Shasta, Tehama, and Trinity counties.)

Redding, lat. 40 deg. 30 min., long. 122 deg. Scale, 1 : 125,000. (Shasta County.)

Redlands, lat. 34 deg., long. 117 deg. Scale, 1 : 62,500. (San Bernardino and Riverside counties.)

Redondo, lat. 33 deg. 45 min., long. 118 deg. 15 min. Scale, 1 : 62,500. (Los Angeles County.)

Riverside, lat. 33 deg. 45 min., long. 117 deg. 45 min. Scale, 1 : 62,500. (Riverside County.)

Rock Creek, lat. 34 deg. 15 min., long. 117 deg. 45 min. Scale, 1 : 62,500. (Los Angeles County.)

Sacramento, lat. 38 deg. 30 min., long. 121 deg. Scale, 1 : 125,000. (El Dorado, Placer, Sacramento, Sutter, and Yuba counties.)

List of topographic maps of California.

San Bernardino, lat. 34 deg., long. 117 deg. 15 min. Scale, 1 : 62,500. (San Bernardino County.)

San Francisco, lat. 37 deg. 45 min., long. 122 deg. 15 min. Scale, 1 : 62,500. (Alameda, Contra Costa, Marin, and San Francisco counties.)

San Gorgonio, lat. 34 deg., long. 116 deg. 30 min. Scale, 1 : 125,000. (San Bernardino and Riverside counties.)

San Jacinto, lat. 33 deg. 30 min., long. 116 deg. 30 min. 48 sec. Scale, 1 : 125,000. (Riverside County.)

San Jose, lat. 37 deg. 15 min., long. 121 deg. 45 min. Scale, 1 : 62,500. (Alameda and Santa Clara counties.)

San Luis, lat. 35 deg., long. 120 deg. 30 min. Scale, 1 : 125,000. (San Luis Obispo County.)

San Luis Rey, lat. 30 deg., long. 117 deg. Scale, 1 : 125,000. (Riverside and San Diego counties.)

San Luis Obispo, lat. 35 deg. 30 min., long. 120 deg. 30 min. Scale, 1 : 62,500. (San Luis Obispo County.)

San Mateo, lat. 37 deg. 30 min., long. 122 deg. 15 min. Scale, 1 :62,500. (Alameda, San Mateo, and San Francisco counties.)

San Pedro, lat. 33 deg. 30 min., long. 118 deg. 15 min. Scale, 1 : 62,500. (Los Angeles County.)

Santa Ana, lat. 33 deg. 30 min., long. 117 deg. 45 min. Scale, 1 : 62,500. (Orange County.)

Santa Cruz, lat. 37 deg., long. 122 deg. Scale, 1 : 125,000. (San Mateo, Santa Clara, and Santa Cruz counties.)

Santa Monica, lat. 34 deg., long. 118 deg. 15 min. Scale, 1 : 62,500. (Los Angeles County.)

Santa Susana, lat. 34 deg. 15 min., long. 118 deg. 30 min. Scale, 1 : 62,500. (Los Angeles and Ventura counties.)

Shasta, lat. 41 deg., long. 122 deg. Scale, 1 : 62,500; also 1 : 250,000. (Shasta, Siskiyou, and Trinity counties.)

Shasta Special Map, lat. 41 deg. 15 min., long. 122 deg. 5 min. Scale, 1 : 62,500. (Siskiyou County.)

Sierraville, lat. 39 deg. 30 min., long. 120 deg. Scale, 1 : 125,000. (Plumas and Sierra counties.)

Silver Peak, lat. 37 deg. 30 min., long. 117 deg. 30 min. Scale, 1 : 125,000. (Nev. and Cal.) (Mono County.)

Smartsville, lat. 39 deg., long. 121 deg. Scale, 1 : 125,000. (Butte, Placer, Nevada, Sierra, and Yuba counties.)

Sonora, lat. 37 deg. 30 min., long. 120 deg. Scale, 1 : 125,000. (Mariposa, Merced, Stanislaus, and Tuolumne counties.)

Southern California sheet No. 1. Scale, 1 : 250,000.

Tamalpais, lat. 37 deg. 45 min., long. 122 deg. 30 min. Scale, 1 : 62,500. (Marin and San Francisco counties.)

Taylorsville, lat. 40 deg., long. 120 deg. Scale, 1 : 31,680. (Plumas County.)

Truckee, lat. 39 deg., long. 120 deg. Scale, 1 : 125,000. (El Dorado, Placer, Nevada, and Sierra counties.)

Tujunga, lat. 34 deg. 15 min., long. 118 deg. Scale, 1 : 62,500. (Los Angeles County.)

Wellington (Nev. and Cal.), lat. 38 deg. 30 min., long. 119 deg. Scale, 1 : 125,000. (Mono County, Cal.)

Yosemite, lat. 37 deg. 30 min., long. 119 deg. 30 min. Scale, 1 : 125,000. (Madera, Mariposa, and Tuolumne counties.)

Map of cinder cone region in northern California; by J. S. Diller. U. S. Geol. Surv., Bull. No. 79, pp. 22-23.

Map of Clear Lake district. Scale 11½ m. to 1 in. George F. Becker, geologist in charge. U. S. Geol. Surv., Mon. XIII, atlas sheet no. 3.

Map showing the area where the earthquake was most severe. U. S. Geol. Surv., Bull. No. 112, p. 21.

Geological map of Golden Gate Hill and vicinity. Scale, 1:62,500. Geology by H. W. Turner. U. S. Geol. Surv., Ann. Report XIV, part 2, pp. 492-493.

Contour map of Neocene bedrock surface in vicinity of Nevada City and Grass Valley. U. S. Geol. Surv., Ann. Report XVII, part 2, pp. 102-103.

Map showing fault lines in northwestern part of Great Basin. Scale, 24 m. to 1 in. U. S. Geol. Surv., Ann. Report XIV, pp. 438-439.

Map of formations in neighborhood of Great Western quicksilver mine. Scale, 1,250 ft. to 1 in. H. W. Turner, geologist. U. S. Geol. Surv., Mon. XIII, pp. 358-359.

Geological map of Grizzly Peak. Scale, 1:62,500. Geology by H. W. Turner. U. S. Geol. Surv., Ann. Report XIV, pp. 486-487.

Preliminary general geological map of Klamath Mountains and adjacent region of Oregon and California. Scale, 40 m. to 1 in. U. S. Geol. Surv., Ann. Report XIV, part 2, pp. 414-415.

Map of Knoxville district. Scale, 1,250 ft. to 1 in. George F. Becker, geologist in charge. U. S. Geol. Surv., Mon. XIII, atlas sheet no. 5.

Geological map of Lassen Peak quadrangle. Scale, 1:400,000. Areal geology by J. S. Diller. U. S. Geol. Surv., Ann. Report VIII, part 1, pp. 406-407.

Map of Mono Basin in Pleistocene time. Scale, 1:250,000. J. C. Russell, geologist. U. S. Geol. Surv., Ann. Report VIII, part 1, pp. 328-329.

Geological map of Mount Ingalls. Scale, 1:62,500. Geology by W. H. Turner. U. S. Geol. Surv., Ann. Report XIV, part 2, pp. 490-491.

Map of Oro Fino and other claims near Nevada City. U. S. Geol. Surv., Ann. Report XVII, part 2, p. 219.

Geological map of Nevada City and Grass Valley mining district, Nevada County, California. Scale, 1:28,800. Geology by W. Lindgren. U. S. Geol. Surv., Ann. Report XVII, part 2, pocket.

Map of New Almaden district. Scale, 1,250 ft. to 1 in. George F. Becker, geologist in charge. U. S. Geol. Surv., Mon. XIII, atlas sheet no. 7.

Map of New Idria district. Scale, 1,250 ft. to 1 in. George F. Becker, geologist in charge. U. S. Geol. Surv., Mon. XIII, atlas sheet no. 6.

Map of Oathill quicksilver mine. Scale, 1,250 ft. to 1 in. H. W. Turner, geologist. U. S. Geol. Surv., Mon. XIII, pp. 354-355.

Map of the Ophir and Duncan Hill mining district, Placer County, California. Topography and geology by W. Lindgren. Scale, 1,400 ft. to 1 in. U. S. Geol. Surv., Ann. Report XIV, part 2, pp. 248-249.

Map of morainal embankments of Parker and Bloody canyons. Scale, 1:50,000. J. C. Russell, geologist. U. S. Geol. Surv., Ann. Report VIII, part 1, pp. 340-341.

Map of the distribution of quicksilver mines. George F. Becker, geologist in charge. U. S. Geol. Surv., Ann. Report VIII, part 2, pp. 966-967; Mon. XII, frontispiece.

Geological map of San Clemente Island; by W. S. T. Smith. Scale, 1:200,000. U. S. Geol. Surv., Ann. Report XVIII, pp. 464-465.

Geological map of San Francisco peninsula; by Andrew C. Lawson. Scale, 1:113,000. U. S. Geol. Surv., Ann. Report XV, pp. 406-407.

Map of part of Sierra Nevada, showing principal bedrock formation and location of special sheets. Scale, 1:28,800. U. S. Geol. Surv., Ann. Report XVII, part 2, pp. 12-13.

Geological map of the older formations in the Sierra Nevada. U. S. Geol. Surv., Ann. Report XVII, pp. 532-533.

Map of portion of drainage area of Stanislaus River, showing distribution of latites and other Neocene lavas and tuffs. U. S. Geol. Surv., Bull. no. 89, pp. 12-13.

Map of Sulphur Bank district. Scale, 1,250 ft. to 1 in. George F. Becker, geologist in charge. U. S. Geol. Surv., Mon. XIII, atlas sheet no. 4.

TOPOGRAPHIC ATLAS, U. S. GEOLOGICAL SURVEY WEST OF THE 100TH MERIDIAN.

GEORGE M. WHEELER, Geologist in Charge.

Parts of southwestern Nevada and eastern California, No. 57. Scale, 8 m. to 1 in. Area, 17,209 square miles. Lat. 37 deg. 20 min., long. 116 deg. 30 min.

Almost all the area belongs to the Great Basin, prominent parts of which are Walker and Mono lakes basins with parts of Owens River.

Topographical map of parts of eastern California and western Nevada, in the vicinity of Tahoe, Pyramid, Winnemucca and Henry lakes. Scale, 4 m. to 1 in. Area, 88,325 square miles.

Topographical map of Lake Tahoe region, Nevada and California. Photolithographic edition, 1881; scale, 1 m. to 34 in. Heliogravure edition, 1882; scale, 2 m. to 1 in.

Topographical map of Yosemite Valley and vicinity. Scale, 1 m. to 3 in.

Southeastern California and southwestern Nevada, No. 65. Scale, 8 m. to 1 in. Area, 17,588 square miles. Lat. 35 deg. 40 min., long. 116 deg. 30 min.

The crest of the Sierra Nevada with Fisherman's Peak or Mount Whitney, the western half of the sheet marking the watershed between the Great Basin and that of the Sacramento.

Parts of eastern California and southeastern Nevada, No. 66. Scale, 8 m. to 1 in. Area, 17,588 square miles. Lat. 35 deg. 40 min., long. 113 deg. 45 min.

The divide between the Great Basin and the Colorado crosses the sheet almost northerly and southerly, forming a part of southeastern perimeter of the landlocked area.

Part of southern California, No. 73. Scale, 8 m. to 1 in. Area, 17,952 square miles. Lat. 34 deg., long. 116 deg. 30 min.

Parts of southern Oregon, northwestern Nevada, and northeastern California, No. 38. Scale, 4 m. to 1 in. Area, 4,075 square miles.

Parts of northeastern California and northwestern Nevada, No. 38*d*. Scale, 4 m. to 1 in. Area, 4,127 square miles. Lat. 40 deg. 40 min., long. 119 deg. 15 min. (Pit River, Alturas, etc.)

Parts of northern California, No. 47*a*. Scale, 4 m. to 1 in. Area, 4,178 square miles. Lat. 39 deg. 50 min., long. 120 deg. 37 min.

Parts of eastern California and western Nevada, No. 47*b*. Scale, 4 m. to 1 in. Area, 4,178 square miles.

Parts of eastern California and western Nevada, No. 47*d*. Scale, 4 m. to 1 in. Area, 4,229 square miles.

Parts of eastern California and western Nevada, No. 56*b*. Scale, 4 m. to 1 in. Area, 4,278 square miles. Lat. 38 deg. 10 min., long. 119 deg. 15 min.

The area belongs principally to the drainage of the Sacramento with the exception of a narrow strip along the eastern and north-central border of 56*b*.

Parts of central California, No. 56*d*. Scale, 4 m. to 1 in. Area, 4,326 square miles. Lat. 37 deg. 20 min., long. 119 deg. 15 min.

Topographical map of Yosemite Valley and vicinity. Also Hetch-Hetchy Valley and Mariposa and other groves of big trees.

Part of southeastern California, No. 62*d*. Scale, 4 m. to 1 in. Area, 4,326 square miles.

Part of eastern California, No. 65*d*. Scale, 4 m. to 1 in. Area, 4,420 square miles. Lat. 35 deg. 40 min., long. 116 deg. 30 min. (Inyo County.)

Part of southern California, No. 73. Scale, 8 m. to 1 in. Area, 4,466 square miles. Lat. 34 deg. 50 min., long. 117 deg. 30 min.

Part of southern California, No. 73*a*. Scale, 4 m. to 1 in. Area, 4,466 square miles. Lat. 34 deg. 50 min., long. 117 deg. 52 min. (Kern River.)

Part of southwestern California, No. 73*c*. Scale, 4 m. to 1 in. Lat. 34 deg., long. 117 deg. 52 min. 30 sec.

Los Angeles and vicinity and adjacent coast, the coast ranges, the southern end of the Great Tulare Valley, and an arm of the Mojave Desert.

MAPS ISSUED BY STATE MINING BUREAU.

1880. Map of mud volcanoes of the Colorado Desert. Scale, 10,000 ft. to 1 in. Accompanying 2d Report State Mining Bureau, 1880-82, pp. 227-240.

San Bernardino County, Sec. 15, T. 11 S., R. 13 E.

1883. Sketch map of California and Nevada, showing the locality of principal borax fields. Accompanying 3d Report State Mining Bureau, 1883.

1886. Sketch map of San Diego County, showing the portion of mines and minerals referred to in the 6th Report State Mining Bureau, 1886.

1886. Map of Julian district, San Diego County. Accompanying 6th Report State Mining Bureau, 1885-86, part 1, p. 82.

1888. Map of the Grass Valley mining district, Nevada County, showing the principal mines; by M. Attwood. Scale, 30 chains to 1 in. Accompanying 8th Report State Mining Bureau, 1888, p. 780.

1890. Geological map of Trinity County; by William P. Miller. Accompanying 10th Report State Mining Bureau, 1890.

1890. Map of the mines and locations in the vicinity of the Sierra Buttes; compiled by L. P. Goldstone. Accompanying 10th Report State Mining Bureau, 1890.

1890. Map of the Ophir and Duncan Hill mining district, Placer County; by J. B. Hobson. Accompanying 10th Report State Mining Bureau, 1890.

1890. Geological map of Placer County; by J. B. Hobson. Accompanying 10th Report State Mining Bureau, 1890.

1890. Geological map of the Iowa Hill mining district, Placer County; by J. B. Hobson. Scale, 1,500 ft. to 1 in. Accompanying 10th Report State Mining Bureau, 1890.

1890. Map of gold quartz mines in vicinity of Grass Valley and Nevada City and Banner Mountain, Nevada County; by J. B. Hobson. Accompanying 10th Report State Mining Bureau, 1890.

1890. Geological map of Nevada County; by J. B. Hobson. Accompanying 10th Report State Mining Bureau, 1890.

1890. Map of Santa Catalina Island; by E. B. Preston. Accompanying 10th Report State Mining Bureau, 1890.

1890. Map of the Forest Hill divide, Placer County; by Ross E. Browne. Scale, 2,000 ft. to 1 in. Accompanying 10th Report State Mining Bureau, 1890.

1890. Geological map of the Mother Lode region; by H. W. Fairbanks. Scale, 1 m. to 1 in. Accompanying 10th Report State Mining Bureau, 1890.

1891. Preliminary geological map of California. Scale, 12 m. to 1 in. Accompanying 10th Report State Mining Bureau, 1891.

1893. Geological map of portions of San Diego, Orange, and San Bernardino counties; by H. W. Fairbanks. Scale, 6 m. to 1 in. Accompanying 11th Report State Mining Bureau, 1893.

1893. Geological map of Shasta County; by H. W. Fairbanks. Scale, 6 m. to 1⅜ in. Accompanying 11th Report State Mining Bureau, 1893.

1893. Map of Georgetown divide, El Dorado County; by E. B. Preston. Accompanying 11th Report State Mining Bureau, 1893.

1893. Topographical and construction map, Golden Feather channel dam site, canal and wall locations, and river mining claims, Feather River, California. Scale, 100 ft. to 1 in. Accompanying 11th Report State Mining Bureau, 1893, p. 150.

1894. Map of the great central valley of California; by W. L. Watts. Accompanying Bulletin No. 3, State Mining Bureau, 1894.

1894. Sketch map showing portions of asphaltum veins, Kern County. Accompanying Bulletin No. 3, State Mining Bureau, 1894.

1894. Sketch map showing territory located as oil claims N. S. W. of Coalinga. Accompanying Bulletin No. 3, State Mining Bureau, 1894.

1894. Map of the principal gravel mines in the vicinity of Placerville; by R. Rowlands. Accompanying 12th Report State Mining Bureau, 1894.

1894. The channel system of the Harmony ridge, Nevada County, California; by Ross E. Browne. Accompanying 12th Report State Mining Bureau, 1894.

1894. Map of auriferous conglomerate deposit, Siskiyou County, California; by R. L. Dunn. Scale, 1 m. to 1 in. Accompanying 12th Report State Mining Bureau, 1894.

1894. Map showing ancient channel system of Calaveras County. Accompanying report of W. H. Storms, 12th Report State Mining Bureau, 1894.

1894. The ancient channel system between San Andreas and Mokelumne Hill, Calaveras County; compiled by W. H. Storms. Accompanying 12th Report State Mining Bureau, 1894.

1896. Geological map of the Mother Lode belt in El Dorado County; by Henry Lahiffee. Accompanying 13th Report State Mining Bureau, 1896.

1900. A geological sketch map of territory between Los Angeles and Santa Ana River; by W. L. Watts. Accompanying Bulletin No. 19, State Mining Bureau, 1900.

1900. Geological relief map of the Puente Hills, California. Scale, 2 m. to 1 in. Accompanying Bulletin No. 19, State Mining Bureau, 1900.

This bulletin also contains:

B. Geological sketch map of a portion of foothills of Santa Ana Mountains.

C. Geological sketch map of Los Angeles oil-fields.

D. Geological sketch map No. 2 of Los Angeles oil-fields.

E. Geological sketch map of peninsula of San Pedro.

F. Geological sketch map of southeast portion of Orange County.

G. Geological sketch map of territory between Sespe and Piru creeks, Ventura County.

H. Geological sketch map of Devil's Gate oil district, Ventura County.

I. Sketch map of Summerland, showing oil-wells and wharves.

J. Map of a portion of Kern County, showing location of McKittrick, Sunset, and Kern oil districts.

K. Map of the Sunset oil district, Kern County.

L. Geological sketch map of Coalinga oil district, Fresno County.

M. Map of a portion of California, showing location of oil districts.

1902. Map of California, showing the approximate location of the principal copper deposits of the State. Scale, 20 m. to 1 in. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Relief map of California; by N. F. Drake. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Map of portion of Shasta County copper belt east of the Sacramento River. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Map of the Shasta County copper belt west of the Sacramento River. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Geological map of the western portion of Shasta County copper belt. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Geological map of the eastern portion of Shasta County copper belt. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Island Mountain Consolidated copper mines, Trinity County. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Map of Green Mountain group of mining claims, Mariposa County. Accompanying Bulletin No. 23, State Mining Bureau, 1902.

1902. Relief map of California; by N. F. Drake. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1902. Map of the saline deposits of the southern portion of California; by G. E. Bailey. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1902. Map of California, showing the approximate location of the principal saline deposits of the State. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1902. Map of Lakes Le Conte and Aubury (San Bernardino County). Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1902. Map of Mojave Desert dry lakes. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1903. Geological map of portions of Napa, Sonoma, and Lake County quicksilver districts, California. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

This bulletin also contains:

B. Geological map of Napa, Sonoma, Lake, and Yolo county quicksilver deposits.

C. Map of Sulphur Creek district—Colusa and Lake counties.

D. Map of the Little Panoche mining district, Fresno County.

E. Geological map of quicksilver district in southern portion of San Benito County.

F. Geological map of Stayton mining district, San Benito, Santa Clara, and Merced counties.

G. Geological map of quicksilver districts, northwestern portion of San Luis Obispo County.

H. Map of the New Almaden mining district, Santa Clara County.

The State Mining Bureau has issued the following maps, scale 2 m. to 1 in.:

Register of mines and minerals, with map, of Plumas County.

Register of mines and minerals, with map, of Calaveras County.

Register of mines and minerals, with map, of Siskiyou County.

Register of mines and minerals, with map, of Trinity County.

Register of mines and minerals, with map, of Lake County.

Register of mines and minerals, with map, of Nevada County.

Register of mines and minerals, with map, of Placer County.

Register of mines and minerals, with map, of Shasta County.

Register of mines and minerals, with map, of El Dorado County.

This report also contains a geological map of El Dorado County.

Register of mines and minerals, with map, of Inyo County.

Register of mines and minerals, with map, of San Bernardino County.

Register of mines and minerals, with map, of San Diego County.

Register of mines and minerals, with map, of Amador County.

This report also contains an economic geological map of western half of Amador County.

Register of mines and minerals, with map, of Sierra County.

This report also contains a geological map of western half of Sierra County.

Register of mines and minerals, with map, of Tuolumne County.

This report also contains an economic geological map of the western portion of Tuolumne County.

Map and register of Los Angeles City oil-field.

In preparation: Register of mines and minerals, with maps, of Mariposa, Santa Barbara, Kern, and Butte counties.

WESTERN AND PACIFIC STATES.

1844. Carte de la cote de l'Amerique sur l'ocean septentrional, comprenant le territoire de l'Oregon, les Californies, etc. Dressee par M. Duflot de Mofras pour servir a l'intelligence de son voyage d'exploration. Paris, Arthus-Bertrand, 1844. Scale, 1 : 5,555,555 myriametres.

Published also in the atlas to his voyage.

1846. New map of Texas, Oregon, and California, with the regions adjoining. Compiled from the most recent authorities. Phila.; published by S. Augustus Mitchell. 1846. Scale, 100 m. to 1 in.

Delineating emigrant routes, and distances.

1860. Territory and military department of Utah. Compiled in the Bureau of topographical engineers of the U. S. War Department chiefly for military purposes, under the authority of Hon. J. B. Floyd, Secretary of War. 1860. Scale, 24 m. to 1 in.

Embraces the southern Pacific States.

1863. Bancroft's map of the Pacific States. Compiled by W. H. Knight. Published by H. H. Bancroft & Co. San Francisco, 1863. Scale, 24 m. to 1 in. Other editions of 1864, 1866, 1867, 1868, 1870.

1864. Maps of the Pacific States west of the Mississippi. Published by Colton. New York, 1864. No scale.

1865. Map of California, Nevada, Utah, Colorado, Arizona, and New Mexico. Published by H. H. Bancroft & Co. San Francisco, 1865. Scale, 80 m. to 1 in.

Also in Clarke's school geography. Scale, 75 m. to 1 in.

1865. Colton's map of the states and territories west of the Mississippi River to the Pacific Ocean, showing the overland routes, projected railroad lines, etc. Published by G. W. and C. B. Colton. New York, 1865. No scale. Size, 39x25 in.

1866. Outline map of the Pacific States, designed to accompany Clarke's series of geographies. Published by H. H. Bancroft & Co. San Francisco, 1866. Scale, 24 m. to 1 in.

1866. Map of parts of California, Nevada, Oregon, and Idaho territory, showing the routes to the Humboldt and Reese River mines, Surprise Valley, Owyhee mines, Idaho, etc. Compiled from the latest information and comprising the results of explorations made by Lt. Col. R. S. Williamson assisted by J. D. Hoffmann in 1865, Lt. W. H. Heuer in 1866, U. S. Engineer's office, San Francisco, 1866. Published with official consent by Britton & Rey. San Francisco, 1866. Scale, 12 m. to 1 in.

1866. Schonberg's map of California, Oregon, and Nevada, with part of Idaho, Utah, and Arizona. [N. Y. cop. 1866.] Scale, 75 m. to 1 in.

1868. Territory of the United States from the Mississippi River to the Pacific Ocean. Originally prepared to accompany the Reports of the explorations for a Pacific railroad route. Compiled by Lieut. G. K. Warren in the office of Pacific R. R. surveys, War Department. Recompiled and redrawn under the direction of the chief of corps of engineers by Edward Freyhold. 1865-6-7-8. Scale, 1:3,000,000 (48 m. to 1 in.).

The original map, of which this is a revision, is published in the "Reports," vol. 11.

1868. Bancroft's map of California, Nevada, Utah, and Arizona. Published by H. H. Bancroft & Co. San Francisco, 1868. Scale, 24 m. to 1 in. Also in 1871 and 1878.

1869. Cabinet map of the Western States and Territories on a rectangular projection, showing the location of the gold, silver, and other minerals, the railroads and principal cities, the meridian lines. Compiled from government maps and published by Rufus Blanchard. Chicago, 1869. Scale, 60 m. to 1 in.

1873. Map. Published by the San Francisco Chronicle. Scale, 40 m. to 1 in.

1876-7. New map of the territory of Arizona, southern California, and parts of Nevada, Utah, and Sonora. Compiled from the latest authentic data by Lt. J. C. Mallery and J. W. Ward. San Francisco, 1876-7. Scale, 16 m. to 1 in.

1879. Maps of the territory of the United States west of the Mississippi River. Prepared by authority of the Honorable, the Secretary of War, in the office of the chief of engineers, under the direction of Brig. Gen. A. A. Humphreys, chief of engineers, by Edward Freyhold. 1879. Scale, 1:2,000,000 (32 m. to 1 in.).

1883. Map of the territory of the United States west of the Mississippi River. Prepared in the office of the chief of engineers, U. S. A., by W. W. Winship, D. Callahan, Louis Nell, and J. R. P. Mechlin. 1883. Scale, 1:2,000,000 (32 m. to 1 in.).

[No date.] New railroad and county map of the Pacific States and Territories, and the Rocky Mountain region. Published by R. Tenney. San Francisco, [188—]. Scale, about 60 m. to 1 in.

1901. Map of Pacific States—Washington, Idaho, Oregon, Nevada, California, and Arizona. Published by Pacific States Tel. & Tel. Co. 1901. Scale, 22 m. to 1 in.

CALIFORNIA AND NEVADA.

1863. De Groot's map of Nevada Territory, exhibiting a portion of southern Oregon and eastern California, with county boundaries, mining districts, railroad routes, wagon roads, table of distances, etc. Published by Warren Holt. San Francisco, 1863. Scale, 12½ m. to 1 in.

1863. New map of the State of California and Nevada Territory, exhibiting the rivers, lakes, towns; also meridian, standard, range, and township lines; added the county boundaries and United States land districts. Carefully compiled from United States and other reliable surveys by Leander Ransom and A. J. Doolittle. 1863. Published by W. Holt. Scale, 24 m. to 1 in.

1864. Bancroft's map of California and Nevada. Compiled from the latest and most reliable official sources and special surveys. Published by H. H. Bancroft & Co. San Francisco, 1864. Scale, 24 m. to 1 in.

1868. *Same.* Edition of 1868.

1871. *Same.* Edition of 1871. Published by A. L. Bancroft & Co. Scale, 24 m. to 1 in.

1864-5. Maps of public surveys in California and Nevada to accompany report of U. S. Surveyor-General, 1864-5. Scale, 18 m. to 1 in.

1865. Topographical and railroad map of the central part of California and Nevada; compiled from railroad, United States public land, United States coast, California state geological, and from reliable private, surveys, and published by C. Bielawski, J. D. Hoffmann, and A. Poett. 1865. Scale, 4 m. to 1 in.

1866. Map of public surveys in California and Nevada to accompany report of Commissioner of the General Land Office. 1866. Scale, 18 m. to 1 in.

With colored indications of mineral deposits, etc.

1869. Map of the States of California and Nevada, carefully compiled from the latest authentic sources. California, by J. H. von Schmidt, A. W. Keddie, and C. D. Gibbes; Nevada, by C. D. Gibbes. Comprising information obtained from the U. S. Coast and Land Surveys, State Geological Survey by J. D. Whitney, railroad surveys. Published by Warren Holt. San Francisco, 1869. Scale, 12 m. to 1 in. Also in 1876 and 1882.

1876. Map of the States of California and Nevada. Section map. Published by Warren Holt, 1876. Scale, 12 m. to 1 in.

1878. Map of the States of California and Nevada, carefully compiled from the latest authentic sources by C. D. Gibbes. Published by Warren Holt. San Francisco, 1878. Scale, 18 m. to 1 in.

1879. Map of California and Nevada, with parts of Utah and Arizona. Prepared in the office of the chief of engineers, U. S. A. 1879. Scale, 24 m. to 1 in.

1879. Map. Published by the San Francisco Morning Call. Scale, about 60 m. to 1 in.

1882. Bancroft's new map of California and Nevada. Compiled from the latest and most reliable official sources and special surveys. Published by A. L. Bancroft & Co. San Francisco, 1882. Scale, 12 m. to 1 in. Also in 1884.

1883. Post route map of the States of California and Nevada, showing postoffices (with the intermediate distances between them) and mail routes in operation on 1st December, 1883. Published by order Postmaster-General Walter Q. Gresham. Under the direction of C. Roeser, Jr., topographer P. O. Dept. 1883. Scale, 12 m. to 1 in. Also in 1884.

1888. Holt's map of California and Nevada. Published by S. B. Linton. 1888. Scale, 12 m. to 1 in.

1895. New map of California and Nevada. Published by Whitaker, Ray & Co. Smaller map showing congressional districts of California. Smaller map of San Joaquin Valley. Scale large map, 12 m. to 1 in.

1901. Post route map of States of California and Nevada, showing postoffices (with intermediate distances between them) and mail routes. 1901. Scale, 10 m. to 1 in.

CALIFORNIA AND OREGON.

1848. Map of Oregon and upper California, from the surveys of J. C. Fremont and other authorities. Drawn by C. Preuss under the order of the Senate of the United States. Washington City, 1848. Scale, 1:3,000,000.

CALIFORNIA.*

1851. Map of the State of California, compiled from the most recent surveys and explorations, and comprising an accurate description of the county boundaries, according to an act passed by the legislature April 25, 1851. Also a complete delineation of the gold region, post office routes, etc. 1851. Lithographed and published by B. F. Butler, San Francisco. Scale, 25 geogr. m. to 1 in.

1851. Newly constructed and improved map of the State of California, showing the extent and boundaries of the different counties, according to an act passed by the legislature April 25, 1851, with a corrected and improved delineation of the gold region. Copied from the best and most recent surveys by J. B. Tassin. Lithographed by Pollard & Peregoy. Published by Cooke & LeCount, San Francisco. Scale, 24.6 m. to 1 in. Size, 24x18 in.

1853. Map of the State of California. Published by Britton & Rey, lith., San Francisco. Drawn and compiled from the most recent surveys by J. B. Trask. [Copyright 1853.] Scale, 32 m. to 1 in.

1854. Official map of the State of California, approved by an act of the legislature passed March 25, 1853. Compiled by W. R. Eddy, State Surveyor-General. Published for R. A. Eddy, Marysville, Cal., by J. H. Colton. New York, 1854. Scale, 18 m. to 1 in.

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*For geological maps of California, see list given on pages 181-190 of this Bulletin.

1856. California. Published by J. H. Colton & Co. New York, 1856. Scale, 50 m. to 1 in.

1857. Britton & Rey's map of the State of California, compiled from the U. S. land and coast surveys, the several military, scientific and railroad explorations, the state and county boundary surveys made under the order of the Surveyor-General of California, and from private surveys by George H. Goddard. Completed with additions and corrections up to the day of publication from the U. S. Land Office and other reliable sources. Engraved by H. Steinegger. [Copyright 1857.] Scale, 24 m. to 1 in.

1859. Map of public surveys in California to accompany report of [U. S.] Surveyor-General. 1859. Scale, 18 m. to 1 in. Also in 1861, 1862, 1863, 1866.

[185--.] Skeleton map of the State of California, exhibiting the U. S. township and range lines and boundaries of U. S. land districts, the county seats and the lines of equal variation of the compass. Compiled from authentic sources for the California Academy of Natural Sciences by Leander Ransom. San Francisco. B. F. Butler, publisher. n. d. Scale, 40 m. to 1 in.

Published some time in the fifties.

1860. Britton & Rey's map of the State of California issued after the adjournment of the legislature, 1860. Compiled from the U. S. land and coast surveys, the several military, scientific, and railroad explorations, the state and county surveys made under the order of the Surveyor-General of California, and from private surveys. Completed with additions and corrections up to the day of publication from the U. S. Land Office and other reliable sources. San Francisco, [1860]. Scale, 20 m. to 1 in.

1860. Map of the State of California. Compiled from the most recent surveys and explorations. Containing all the latest discoveries and newest towns. By Vincent. [1860.] No scale. [About 30 m. to 1 in.]

With a panorama of San Francisco and Contra Costa; also a sketch map of San Francisco and vicinity.

1870. Map of the State of California, showing the U. S. land districts, the county boundaries and what townships have been surveyed by the United States government. Prepared under the direction of John Mullan. San Francisco, 1870. The original drawn by R. Gibbons. Scale, [about] 24 m. to 1 in.

1879. State of California. 1879. [Published by the U. S.] Department of the Interior, General Land Office. Compiled from the official records of the General Land Office and other sources by C. Roeser, principal draughtsman. Scale, 18 m. to 1 in.

1885. *Same.* 1885. G. P. Strum, principal draughtsman.

1882. Map. Published by the San Francisco Morning Call. Scale, 60 m. to 1 in.

A bird's-eye view (undated) has been issued by the same newspaper.

1884. Map of the State of California, compiled expressly for the Immigration Association of California. San Francisco, [1884]. Scale, 30 m. to 1 in.

1884. Rand, McNally & Co.'s new enlarged scale railroad and county map of California, showing every railroad station and postoffice in the State. Chicago. [cop. 1884.] Scale, 18 m. to 1 in.

1886. *Same.* Scale, 22 m. to 1 in.

1887. Climatic map of California. Published by the Southern Pacific Company. 1887. From map prepared under the direction of Brig. Gen. H. C. Wright, Chief of Engineers, U. S. A. Compiled by E. McD. Johnstone. Lith. H. S. Crocker & Co., S. F., Cal. Scale, 32 m. to 1 in.

[No date.] Cram's new railroad and township map of California, showing latest government surveys. Published by George F. Cram, 264 Wasbash ave., Chicago. [n. d.] Scale, 28 m. to 1 in.

1888. The Morning Call map of California and Nevada. San Francisco, 1888.

1891. Commissioners' official railroad map of California. Scale, about 20 m. to 1 in.

1893. Indexed township and county map of California. Published by Amerine & Wilson. 1893. Scale, 20 m. to 1 in.

1895. Map of California, showing townships, ranges, county seats, Spanish land grants, railroads and wagon roads. Published by W. B. Walkup & Co. Scale, 14 m. to 1 in.

1897. Map of the State of California. Compiled and published by Punnett Bros., 625 Mission street. San Francisco, 1897. Scale, about 23 m. to 1 in.

This map has a small map of San Joaquin Valley, also a map of Yosemite Valley attached.

1900. Map of California (pictorial relief). Issued by California Paris Exposition Commission of 1900. Scale, about 20 m. to 1 in.

Accompanying outline map on same sheet, showing climatic changes. Scale, about 40 m. to 1 in.
Same. Showing forestry districts.
Same. Showing viticultural districts.
Same. Showing oil and petroleum districts.
Same. Showing agricultural districts.
Same. Showing mineral districts.

1900. Commissioners' official railroad map of California. Completed to 1900. Scale, about 20 m. to 1 in.

1900. Map of State of California. Published by Department of Interior—General Land Office, showing forest reserves. Scale, 12 m. to 1 in.

CENTRAL CALIFORNIA.

1849. A correct map of the bay of San Francisco and the gold region from actual survey June 20, 1849, for J. J. Jarvis, embracing all the new towns, ranchos, roads, dry and wet diggings, with their several distances from each other. Published by James Munroe & Co. 134 Washington street, Boston. Scale, 10 m. to 1 in.

1849. Sketch of General Riley's route through the mining districts, July and August, 1849. Copied from the original sketch by Lt. Derby in the office of the 10t. military department by J. McH. Hollingworth, assistant. Scale, 10 geogr. m. to 1 in.

1867. Map of the region adjacent to the bay of San Francisco. 1867. State Geological Survey of California; J. D. Whitney, State Geologist. Scale, 2 m. to 1 in.

1868. *Same.* 2d ed. 1868.

Embraces in whole or in part the counties of San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, Solano, Sacramento, Napa, Sonoma, and Marin:—the territory covered by sheet III of the 1873 map of central California.

1868. Township and county map of [east] central California, exhibiting the U. S. land surveys, schools, land districts, postoffices, roads, etc. Drawn and published by A. J. Doolittle, San Francisco and Nevada City, Cal., 1868. Scale, 2 m. to 1 in.

Comprises the counties of Butte, Sierra, Nevada, Yuba, Placer, El Dorado, and Sacramento.

1868. Holt's map of the Owen's River mining country. Compiled and drawn from the most reliable information by Arthur W. Keddie. Published by Warren Holt. San Francisco, 1868. Scale, 5 m. to 1 in.

Comprising present counties of Mono, Inyo, and eastern Fresno.

1869. Bancroft's map of central California. Compiled by W. H. Knight. Published by H. H. Bancroft & Co. San Francisco, 1869. Scale, 12 m. to 1 in.

1871. Map of central California, by the State Geological Survey. First sheet (S. W. quarter). Scale, 6 m. to 1 in. 1871.

1887. Topographical and irrigation map of the Great Central Valley of California. Issued by California State Engineering Department, Wm. Ham. Hall, Chief Engineer. Scale, 6 m. to 1 in.

1890. Bancroft's Bay counties.

SOUTHERN CALIFORNIA.

1847. Sketch map of California, showing routes between Sutter's Fort and San Diego, with number of American forces at various points. Adjutant's office, Monterey, Cal., June 19, 1847. Sen. Ex. Doc. No. 1, vol. 1, 30th Cong., 1st sess.

1850. Routes of Col. P. St. George Cook from Joya to Santa Fe and down the Rio Grande to San Diego. Scale, 12 m. to 1 in. 31st Cong., 1st sess., House Doc. No. 41, 1850.

1850. Map of southern California; by Capt. W. H. Warner. 1847-49. Scale, 15 m. to 1 in. 31st Cong., 1st sess., Sen. Ex. Doc. No. 47, 1850.

1861. [M. H.] Farley's map of the newly discovered tramontane silver mines in southern California and western New Mexico, together with the most practicable route thereto, and a correct table of reference, embracing distances, etc. Compiled from the official maps in the U. S. Surveyor-General's office, from the surveys of the United States and California Boundary Commission, and from his own private explorations. I. H. Wildes, draughtsman. Published by W. Holt. San Francisco, [cop. 1861]. Scale, 18 m. to 1 in.

1886. Map of a part of southern California, accurately compiled from plats of U. S. land surveys, county records and other reliable sources by [C. H.] Howland and Koeberle, surveyors and draughtsmen, Los Angeles, Cal. 1886. Scale, 4 m. to 1 in.

Comprises the counties of San Diego and Los Angeles and portions of San Bernardino, Kern and Ventura counties.

1887. Rand-McNally's large-scale sectional map.

1888. Drainage area map, to accompany report on irrigation and water-supply in California; by Wm. Ham. Hall, State Engineer.

1888. Rainfall distribution map, to accompany report on irrigation and water supply in California; by Wm. Ham. Hall, State Engineer.

1889. Boundary between the United States and Mexico as surveyed and marked by the International Boundary Commission under the convention of July 29, 1882. Revised February 18, 1889. The California line is marked on maps Nos. 1, 2, 3, and 4. Scale, 1:60,000; contour interval, 20 meters.

1903. Miners' map of Death Valley, the Mojave, Amargosa, and Nevada deserts. Compiled by Russel Crowell. 1903. Scale, 8 m. to 1 in.

COUNTIES.*

ALAMEDA.

1857. Official map of the county of Alameda. Surveyed and compiled by order of the Board of Supervisors by Horace A. Higley, County Surveyor. April, 1857. Scale, 1½ m. to 1 in. (Britton & Rey, lith.)

The unpublished original drawing by M. G. King is on a scale of ¾ m. to 1 in.

*For county maps containing geological information, see pages 184-187 of this Bulletin.

1874. Official map of Alameda County, California. Compiled from official surveys and records and private surveys and published by authority of the Board of Supervisors of Alameda County by G. F. Allardt. 1874. Scale, 40 chains, or ½ m., to 1 in. (Britton, Rey & Co., lith.)

1880. Oakland Daily and Weekly Tribune map of Alameda County. Compiled from the most reliable surveys and corrected to date by M. G. King. 1880. Scale, 1½ m. to 1 in.

1889. Official map of Alameda County. Compiled by G. L. Nusbaumer and W. F. Boardman. 1889. Scale, ¾ m. to 1 in.

1894. Map showing portions of Alameda and Contra Costa counties, and city and county of San Francisco. Scale, 1 m. to 1½ in.

1900. *Same.*

ALAMEDA (OAKLAND TOWNSHIP).

[1853?] Map of the ranchos of Vincente and Domingo Peralta, containing 16,970.68 acres. Surveyed by Julius Kellersberger. [1870.] Scale, 20 chains to 1 in.

The original *drawing* was made in 1852 or 1853, and was filed in the county clerk's office in 1857.

1859. Official map of the city of Oakland, drawn and compiled from records and surveys [by J. E. Whitcher]. 1859. Scale, 200 ft. to 1 in.

This is the only official map published. In 1860 a reproduction of this map was made, on a scale of 600 ft. to 1 in. The 1860 map has a border of illustrations of residences, etc. "— — — denotes squatter's possession"!

[1860?] Complete map of Oakland. Respectfully dedicated to the citizens of Oakland by J. Kellersberger, surveyor. [No date.] Scale, about 600 ft. to 1 in.

Embraces only that part of Oakland bounded by Market and Fourteenth streets, and the estuary. Executed probably about 1860.

1868. Map of Oakland and vicinity, showing plans of streets as established and proposed. Compiled from official surveys and records of the county. W. F. Boardman, city and county surveyor. 1868. [Scale, 1,000 ft. to 1 in.]

1876. Map of Oakland, Alameda, and vicinity, showing plans of streets as opened and proposed. Compiled from the most reliable public and private surveys. Published by M. G. King. Oakland, 1876. No scale.

1878. Map of Oakland township, city of Oakland, and vicinity. Compiled by M. G. King. Published by Woodward & Taggart, 1878. Scale, 800 ft. to 1 in.

A "Berkeley" edition, on a smaller scale, also was published in 1878.

1881. Bird's-eye view of Oakland. 1881. Published by the Times Company.

Another bird's-eye view was published by M. H. Mihills, about 1876.

1884-5. Map of Oakland, Berkeley, and Alameda. William J. Dingee, agent for the purchase of real estate, Oakland. M. G. King, surveyor. [cop. 1878.] Scale, about 2-5 m. to 1 in.

[1887.] Bird's-eye view of Oakland and vicinity, Alameda County, Cal. Specially prepared and presented by the Oakland Tribune. [Jan., 1887.] No scale.

Anticipates projected improvements of the waterfront.

[No date.] Map of the towns of San Antonio and Clinton, now called Brooklyn, showing part of the town of Oakland. [No compiler, publisher, nor date.] Scale, 350 ft. to 1 in.

1892. Oakland and vicinity.

ALAMEDA (ALAMEDA TOWN).

1854. Map of the town of Alameda and adjacent lands. Compiled from surveys and maps made by J. E. Whitcher, Benj. E. Jones, James T. Stratton, and Horace A. Higley, Alameda County surveyors, and includes the town of Alameda as incorporated by the legislature of California, April 19, 1854. 1854. Scale, 300 ft. to 1 in.

ALAMEDA (BERKELEY TOWN).

[1880.] Map of Berkeley. Published by Carnall & Eyre, dealers in Berkeley real estate. Compiled by Joseph Smith, Oakland, from the records of Alameda County. [1880.] Scale, 1,000 ft. to 1 in.

1892. Berkeley; by Raymond.

AMADOR.

1864. Sketch map of the Forest Home and Willow Springs copper mining district, Amador County. San Francisco, 1864.

1866. Official map; by J. M. Griffith. 1866. Scale, 1 1-3 m. to 1 in. (Britton & Rey, lith.)

1881. Official map of Amador County, California. Compiled by J. A. Brown, county surveyor. 1881. Scale, 60 chains to 1 in. (Bosqui Co., lith.)

1899. Geological map of Mother Lode in Amador and El Dorado counties. (See El Dorado.)

1903. Map of Amador County. Scale, 3 m. to 1 in. State Mining Bureau, Register of mines and minerals of Amador County. 1903.

This report includes an economic geological map of western half of Amador County.

BUTTE.

1862. Map; by J. S. Henning. 1862.

1877. Official map of the county of Butte, California. Carefully compiled from actual surveys. Published by James McGann, U. S. dept. surveyor. 1877. (Britton, Rey & Co., lith.) [Scale, 1 m. to 1 in.]

1886. *Same.* 1886.

Northern Butte is mapped topograpically on Lassen Peak sheet published by the U. S. Geological Survey, J. W. Powell, director. 1886. Scale, about 4 m. to 1 in.

1901. Official map of county of Butte. Compiled from official records and actual surveys by B. L. McCoy, county surveyor. 1901. Scale, 1 m. to 1 in.

CALAVERAS.

1864. Map of the copper mines of Calaveras County. From actual survey and measurement. Surveyed and drawn by Handy & Wallace. San Francisco, 1864. Scale, 1 m. to 1 in.

"A private map, made about 1874, was drawn by A. B. Beauvais, very incomplete. A new map soon to be made."—H. H. Saunders, County Surveyor.

1894. Map showing ancient channel system of Calaveras County. Accompanying 12th Report State Mining Bureau, 1894. Scale, 2½ m. to 1 in.

[No date.] Map of mines and gold mining locations, Calaveras County, California. By Capt. J. Beck and E. T. Bacon. No date. Scale, nearly 1 m. to 1 in.

[No date.] Map of a survey of the Mokelumne Hill canal, and a reconnoissance of the adjoining country by George Goddard, C.E. [No date?] Scale, nearly 1 1-3 m. to 1 in.

[No date.] Official map of Calaveras County. Published by W. B. Walkup. Scale, 1 m. to 1 in. (Similar to and prior to 1896 edition.)

1896. Calaveras County official map. Compiled from U. S. official surveys, mines and mining claims, reservoirs and water ditches, wagon roads and trails, mother lode. 1896. Scale, 1 m. to 1 in.

1899. Map of Calaveras County. Compiled by H. W. Penniman. Published in California Mines and Minerals, by California Miners' Association. 1899. Scale, 3 m. to 1 in.

1899. Map of Calaveras County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines and Minerals, Calaveras County.

COLUSA.

1874. Official map, compiled and drawn from official surveys by J. B. De Jarnatt. Approved February session, 1874. Scale, 100 chains to 1 in.

1885. Official map of Colusa County, California. Compiled and drawn from official surveys and records by De Jarnatt & Crane, searchers of records, Colusa, Cal. Approved December, 1885. Scale, 100 chains to 1 in. [Britton & Rey, lith.]

1903. Map of Sulphur Creek district. Accompanying Bulletin No. 27, State Mining Bureau, 1903. No scale.

CONTRA COSTA.

1871. Topographical map of Contra Costa County. Compiled for the Board of Supervisors from the State Geological and U. S. surveys. 1871. Scale, 1 m. to 1 in. [Britton & Rey, lith.]

1885. Official map of Contra Costa County, California. By T. A. McMahon, county surveyor, and Wm. Minto, civil engineer, in accordance with an order of the honorable Board of Supervisors, dated February 4, 1885. Lith., Britton & Rey. Published by T. J. Leary, San Francisco. Scale, 40 chains to 1 in.

1894. See Alameda.

EL DORADO.

1873. Map of Georgetown divide, El Dorado County, showing also portions of the Placerville and Forest Hill divide, with the ditches, mines, etc., of the California Water Co. By Amos Bowman. 1873. Scale, 1 1-7 m. to 1 in.

Accompanies Bowman's report on the properties of the California Water Company. 1874.

1895. El Dorado County. Compiled from official records and surveys. 1895. Scale, 1 m. to 1 in.

1899. Geological map of Mother Lode belt in El Dorado and Amador counties; by Henry Lahiff. Accompanying California Miners' Association souvenir edition of Mines and Minerals. 1899. Scale, 1½ m. to 1 in.

1902. Map of El Dorado County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines and Minerals, El Dorado County. 1902.

FRESNO.

1874. Map of Fresno County, California. Compiled from the U. S. township maps, the geological surveys, and other authorities. By George H. Goddard, C.E., 1874, for Dixon & Faymonville, Millerton, Fresno County. (Britton, Rey & Co., San Francisco.) Scale, [4 m. to 1 in.]

[No date.] Topographical and irrigation map of portion of Fresno County. Issued by California State Engineering Department. Wm. Ham. Hall, Chief Engineer. Scale, 1 m. to 1 in.

1885. Map of a portion of Fresno County, showing some of its principal irrigating canals, colonies, vineyards, and orchards. Published by M. Theo. Kearney. San Francisco, 1885. No scale. Size, 25x20 in.

1885. Map of colonies surrounding Fresno [city], by Shepard & Teilman. 1885.

1886. Official map of Fresno County, California. Compiled from official surveys and records by J. C. Shepard, C.E. 1886. Drawn by J. C. Henkenius. Scale, 1½ m. to 1 in.

1886. Official map of Fresno County. Compiled from official surveys and records by J. C. Shepard and H. B. Choice, civil engineers. 1886. Scale, 3 m. to 1 in.

1892. Official map of Fresno County. Compiled from official surveys and records. 1892. Scale, 2 m. to 1 in.

1903. Map of Little Panoche mining district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

HUMBOLDT.

1865. Official township map. Drawn and published by A. J. Doolittle. 1865. Scale, 2 m. to 1 in. (G. T. Brown, lith.)

1886. Official map of Humboldt County, California. Compiled and drawn by Stanly Forbes, 1886. Scale, 2 m. to 1 in. (Britton & Rey, lith.)

1898. Official map of Humboldt County. Compiled and published by J. N. Lentell. 1898. Scale, 1½ m. to 1 in.

With small map of State, showing relative size of counties.

INYO.

1882. Official map, by J. B. Treadwell. 1882. Scale, 4 m. to 1 in.

1884. [Official] map of the county of Inyo, State of California. Carefully compiled by J. B. Treadwell, U. S. dept. surveyor, from surveys by Joseph Seely, county surveyor. 1884. Approved November 17, 1884. Scale, 4 m. to 1 in.

1874. Mining map of Inyo County, by J. M. Keeler. n. d. Scale, [12 m. to 1 in.].

See also map of central California.

1902. Map of Inyo County. Scale, 2 m. to 1 in. State Mining Bureau. 1902.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

1903. Miners' map of Death Valley, the Mojave, Amargosa, and Nevada deserts. Compiled by Russel Crowell. 1903. Scale, 8 m. to 1 in.

KERN.

1875. Official map of Kern County, California. Compiled from official surveys and records by Ferd. von Leicht and Chas. Kaufman, civil engineers. 1875. Scale, 3 m. to 1 in. (Britton, Rey & Co., lith.)

1888. Official map.

1892. Official map of Kern County. Compiled from public and private surveys, by W. R. Macmurdo. 1892. Scale, 2 m. to 1 in.

1898. Official map of Kern County. Compiled from public records and private surveys by Charles H. Congdon. 1898. Scale, 1 m. to ½ in.

[No date.] Topographical and irrigation map of portion of Kern County. Issued by the State Department of Engineering, Wm. Ham. Hall, Chief Engineer. Scale, 1 m. to 1 in.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

KINGS.

1893. Official map of Kings County, by F. J. Walker. No scale.

LAKE.

1892. Official map of Lake County. Compiled from U. S. government surveys, etc., by S. H. Rice. Scale, 1 1-3 m. to 1 in.

1901. Map of Lake County. State Mining Bureau, Register of Mines and Minerals, Lake County. Scale, 3 m. to 1 in.

1903. Geological map of portions of quicksilver districts. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Geological map of Lake County quicksilver deposits. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Map of Sulphur Creek district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

LASSEN.

Lassen County is topographically mapped by the U. S. Geological Survey, J. W. Powell, director, 1886-90, as follows: northeast portion on Alturas sheet, northwest portion on Modoc lava-bed sheet, west portion on Lassen Peak sheet, and southeast portion on Honey Lake sheet. Scale, about 4 m. to 1 in.

LOS ANGELES.

1857. Map of the city of Los Angeles, showing the confirmed limits. Surveyed in August, 1857, by Henry Hancock, U. S. dept. surveyor. *Includes* Plan a la ciudad, surveyed by E. O. C. Ord, Lt. U. S. A., and Wm. R. Hutton. 1849. Scale, 3-16 m. to 1 in.

1869, 1885. Map of private grants and public lands adjacent to Los Angeles and San Diego. Compiled from official surveys and published by Clinton Day, June, 1869. Revised 1885. San Francisco, 1885. Scale, 4 m. to 1 in.

1877. [Official] map, by J. H. Wildy and A. J. Stahlberg. 1877. Scale, 2 m. to 1 in. (J. Bien, lith.)

1885. Map of the county of Los Angeles and parts of San Bernardino and San Diego counties, California, by H. J. Stevenson, U. S. dept. surveyor. 1885. Scale, 6 m. to 1 in. (Britton & Rey, lith.)

1888. Official map of the county of Los Angeles, California. Compiled from official maps, by V. J. Rowan, surveyor. 1888. Scale, 1½ m. to 1 in.

1888. Outline map of the irrigation region of Los Angeles and San Bernardino counties, California. To accompany report on irrigation and water supply, by Wm. H. Hall, State Engineer. Lith., Britton & Rey. Scale, 5 m. to 1 in.

This map shows the general location of the irrigable region of Los Angeles and San Bernardino counties, their relation to the catchment basin tributary to them, and the areas of each in square miles or acres.

1897. Chart of the port of Los Angeles and Santa Monica bay, showing location of proposed breakwater. Scale, 1:10,000.

These maps accompany Ex. Doc. No. 18, 55th Cong., 1st sess., Senate.

1897. Chart of San Pedro bay and harbor, showing location of breakwater. Scale, 1:10,000.

1898. Official map of the county of Los Angeles, California. Compiled from official maps, by E. T. Wright, county surveyor. 1898. Scale, 1½ m. to 1 in.

Map of the city of Los Angeles. Compiled from official surveys under the supervision of Dana H. Burks, secretary "Street Naming Commission." Scale, 1 m. to 2⅞ in.

1899. Map of San Pedro harbor, California. Survey of October and November, 1899, made under the direction of Capt. James J. Meyler, Corps of Engineers, by F. C. Turner, assistant engineer, showing proposed improvements in the inner harbor. Scale, 1:7,500, or 1 in. to 625 ft. Accompanying Ho. Doc. No. 357, 57th Cong., 1st sess., 1900.

1897. Map of San Pedro bay and harbor, showing location of breakwater and suggested method of utilizing inner harbor and location of piers in outer harbor. Scale, 1:10,000.

1897. Chart of inner harbor at San Pedro, showing soundings made February, 1897. Scale, 1:5,000.

MADERA.

1898. Official map of Madera County, California. Compiled by Frank E. Smith. Published by Punnett Bros. San Francisco, 1898. Scale, 1 m. to 7-10 in.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

MARIN.

1873. [Official] map, compiled by H. Austin. Drawn by F. Whitney. 1873. Scale, 1 m. to 1 in. [A. L. Bancroft & Co., lith.]

1887. Wielands map. (In Marin County Journal.)

1892. Official map of Marin County. Compiled by G. M. Dodge. Scale, 60 chains to 1 in.

MARIPOSA.

1897. Official map of Mariposa County. Compiled from United States surveys and public records. 1897. Scale, 1 m. to 4-5 in.

MENDOCINO.

[1887.] Official map of Mendocino County, Mount Diablo meridian. Showing redwood belt. Drawn and compiled by N. B. Brakenridge, San Francisco. [No date.] Scale, 2 m. to 1 in.

1890. Official map of Mendocino County. Compiled from U. S. government surveys, etc., by Rice & Baltzell. Scale, 120 chains to 1 in.

MERCED.

1874. Official map. Compiled by Mark Howell. Drawn by F. von Frankenberg. 1874. Scale, 80 chains to 1 in. [A. L. Bancroft & Co., lith.]

[No date.] Topographical and irrigation map of a portion of Merced County. Issued by the California State Engineering Department, Wm. Ham. Hall, Chief Engineer. Scale, 1 m. to 1 in.

1888. Official map of Merced County. Compiled from U. S. government surveys, etc., by C. D. Martin. Scale, 100 chains to 1 in.

1897. Official map of Merced County. Compiled from official records and latest surveys, by W. P. Stoneroad. 1897. Scale, 1 m. to 1 in.

1903. Geological map of Stayton mining district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

MODOC.

The Alturas and Modoc lava-bed atlas-sheet maps, by the U. S. Geological Survey, cover Modoc County. Scale, nearly 4 m. to 1 in.

1887. Official map of Modoc County. Compiled from United States government surveys, the official surveys of the State and county lines, and private surveys, by A. A. Smith. 1887. Scale, 1 m. to 1 in.

MONO.

1870. Map of Bodie mining district. Compiled from the latest authentic data by Henry Phillips, and drawn by Wm. P. Humphreys. 1870. Scale, 400 ft. to 1 in.

1880. Map of Bodie mining district, Mono County, California. Surveyed and compiled by C. L. Anderson, and illustrated and published by Edward Eysen. 1880. Scale, 300 ft. to 1 in.

MONTEREY.

1847. Map of Fort Hill, Monterey County. U. S. House Ex. Doc., 1849-50, vol. 5, p. 94.

1877. Map of the county of Monterey. Compiled and drawn by St. John Cox. Approved and declared official, February 9, 1877. Scale, [2 m. to 1 in.]. Published by T. C. Markley, New York.

1898. Official map of Monterey County, California. Compiled from public records, coast and geodetic, and private surveys. 1898. Scale, 1½ m. to 1 in.

NAPA.

1869. Map of Napa city and additions. 1869. Compiled and drawn by W. A. Pierce, surveyor. Scale, 250 ft. to 1 in.

1876. Official map of the county of Napa. Compiled by George G. Lyman and S. R. Throckmorton, Jr. 1876. Scale, 1 m. to 1 in. (M. Schmidt & Co., lith.)

1879. Revised map of the city of Napa and the surroundings. 1879. Compiled and drawn by W. A. Pierce, C.E. Scale, 400 ft. to 1 in.

1881. Map of the central portion of Napa valley and the town of St. Helena. Compiled by M. G. King and T. W. Morgan from the official surveys and records of Napa County. 1881. Published by E. W. Woodward & Co., St. Helena. Scale, 15 chains to 1 in.

1895. Official map of the county of Napa, California. Compiled from official records and latest surveys by O. H. Buckman. 1895. Scale, 4-5 m. to 1 in.

1903. Geological map of portions of Napa County quicksilver districts. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Geological map of Napa County quicksilver deposits. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

NEVADA.

1880. Map of Nevada County, California. Compiled from the latest authentic sources, showing towns, villages, roads, streams, mining ditches, and U. S. land surveys, quartz and placer mining claims, by J. G. Hartwell, county surveyor, 1880. Approved and declared official, July 26, 1880. (W. T. Galloway, lith.) Scale, 1¼ m. to 1 in.

1894. The channel system of the Harmony Ridge, Nevada County, California; by Ross E. Browne. Accompanying 12th Report of State Mineralogist, 1894.

1897. Map of vicinity of Grass Valley and Nevada City, Nevada County, by Charles E. Uren. 1897. Scale, 1 m. to 4 in.

1902. Map of Nevada County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines, Nevada County.

ORANGE.

1889. Map of Orange County. Compiled by S. H. Finley. Scale, 60 chains to 1 in.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

PLACER.

1887. Official map of Placer County. Compiled by E. C. Uren. 1887. Scale, 1¼ m. to 1 in.

1902. Map of Placer County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines, Placer County.

PLUMAS.

1886. Map of Plumas County, California, and portions of Lassen, Sierra, Nevada, Yuba, Butte, Tehama, and Shasta counties, California, and Roop and Washoe counties, Nevada. Compiled from the most authentic sources by Arthur W. Keddie, U. S. dept. surveyor. Quincy, Cal., 1886. Scale, 4 m. to 1 in.

Published by the California Land and Timber Co. Good, though unofficial.

The county is partially topographically mapped by the U. S. Geological Survey, J. W. Powell, director, 1886, on Lassen Peak and Honey Lake atlas sheets. Scale, nearly 4 m. to 1 in.

1892. Official map of Plumas County, California, and portions of Lassen, Sierra, Nevada, Yuba, Butte, Tehama, and Shasta counties, and portion of State of Nevada. Compiled by A. W. Keddie. 1892. Scale, 1½ m. to 1 in.

1898. Map of Plumas County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines, Plumas County. Sacramento, 1898.

RIVERSIDE.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

SAN BENITO.

1891. Official map of San Benito County. Compiled by V. T. and H. W. McCray. 1891. Scale, 1 m. to 1 in.

1903. Geological map of Stayton mining district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Geological map of quicksilver districts in southern portion of county. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

SAN BERNARDINO.

1888. Map showing irrigable regions of San Bernardino and Los Angeles counties. In 12 irrigation sheets. Published by the State Engineering Department to accompany Report on Irrigation and Water Supply, 1888. Wm. Ham. Hall, State Engineer. Scale, ¾ m. to 1 in. (See Los Angeles, 1888.)

1891. Official map of southwest portion of San Bernardino County by T. D. Beasley. 1891. Scale, 1 m. to 1 in.

1892. Official map of San Bernardino County. Compiled and drawn by T. D. Beasley. 1892. Scale, 3 m. to 1 in.

1902. Map of San Bernardino County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines and Minerals. Sacramento, 1902.

1902. Map of the saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

SACRAMENTO.

1849. A correct map from actual surveys and examinations, embracing a portion of California between Monterey and Prairie Buttes, in the valley of the Sacramento, showing the placers. Drawn by F. D. Stuart. 1849. Scale, 50 m. to 1 in. Accompanying Wilke's Western America.

[No date.] Map of the county of Sacramento. No date. No scale. Size, 20½x18 in.

1854. Official map of the city of Sacramento. Compiled from actual surveys by W. S. Watson. 1854. Scale, 400 ft. to 1 in. (B. F. Butler, lith.)

1885. Official map of Sacramento County, California. Compiled by Fred. A. Shepherd, Sacramento, Cal. 1885. Scale, 60 chains to 1 in. (Britton & Rey, lith.)

SACRAMENTO VALLEY.

[No date.] Mapa del valle del Sacramento. No scale. Size, 18x24 in.

A photograph of a tracing, now in possession of Melville Attwood, of Sausalito. "I think the survey was made in 1845."

1890. Map of Sacramento Valley, with elevations and contours, 1 m. to 1 in.; published, 2 m. to 1 in. Examining Commission on Rivers and Harbors, 1889-90.

Map of the Great Central Valley. Scale, 6 m. to 1 in. State Engineering Department.

Map of San Joaquin Valley. Scale, 3 m. to 1 in. State Engineering Department. 4 sheets.

1895. Sacramento Valley from Iron Canyon to Suisun Bay. Topography from public land surveys, from surveys made by the late State Engineer Department, from irrigation district surveys, and from surveys made under the direction of the Commissioner of Public Works. Scale, 2 m. to 1 in. 1895. Published by Commissioner of Public Works of California, A. H. Rose, Comm. 4 sheets.

1895. Outline map of Sacramento and lower San Joaquin valleys, showing swamp land districts. Scale, 3 m. to 1 in. Published by Commissioner of Public Works. 1895.

1895. American basin. Scale, 1 m. to 1 in. Published by Commissioner of Public Works. 1895.

1895. Colusa basin. Scale, 1 m. to 1 in. Lower portion from Maine Prairie to Suisun Bay. Published by Commissioner of Public Works. 1895.

1895. Yolo basin. Scale, 1 m. to 1 in. Upper portion from Maine Prairie to Knight's Landing. Published by Commissioner of Public Works. 1895.

1895. Yolo basin. Scale, 1 m. to 1 in. Lower portion from Maine Prairie to Suisun Bay. Published by Commissioner of Public Works. 1895.

1895. Sutter basin. Scale, 1 m. to 1 in. Published by Commissioner of Public Works. 1895.

1895. Stockton—Bellota. Scale, 1 m. to 1 in. Published by Commissioner of Public Works. 1895.

SAN DIEGO.

1854. Map of city land, San Diego, California; by Charles H. Poole. Britton & Rey, lith. No scale. [1 m. to 1¼ in.]

1870. Map of the pueblo lands of San Diego County, California. May, 1870. James Pascoe, city engineer. Scale, 30 chains to 1 in.

[1870?] Map of San Diego. Compiled from existing surveys by I. Matthias. Scale, 1 m. to 7¾ in. With inset in corner showing entire city limits; scale, 3 m. to 2 3-16 in. Lith., Britton & Rey, San Francisco. n. d.

1876. Bird's-eye view of San Diego, California, from northeast looking southwest. A. L. Bancroft & Co., lith. San Francisco, 1876.

This gives a very accurate idea of the appearance and topography of the city.

1883. Official map of San Diego County, by C. J. Fox and H. J. Willey. New York, 1883. Endicott & Co., lith. Scale, 14 m. to 1 in.

1883. *Same.* Scale, 3 m. to 1 in.

[No date.] Horton's addition to San Diego. Surveyed by L. Lockling. With inset showing city limits. G. T. Brown, lith. San Francisco. n. d.

1885. Map of city of San Diego. Compiled from official maps and recent surveys for Hensley & Pratt, real estate agents, by Richard Stephens, C.E. 1885. Scale, 1 m. to 4 in.

1885. Partition of Rancho Mission of San Diego, San Diego County, Cal., by C. J. Fox. Scale, 35 chains to 1 in. Rand, McNally & Co., lith. Chicago, 1885.

1886. Map of the city of San Diego. Compiled for Hensley & Pratt by Richard Stephens. 1886. Rand, McNally & Co., lith.

1887. Bird's-eye view of San Diego City. Published by San Diego Union Co. Drawn by E. S. Clover and published by Schneider & Kuepplers, San Diego. W. W. Elliott, publisher, San Francisco, 1887.

1888. Wadleigh's map of the city of San Diego, California. Scale, 1 m. to 4 in. San Diego, 1888.

1888. Map of San Diego harbor, California, showing harbor lines established by the board of engineers, Special Orders No. 51, par. 2, headquarters Corps of Engineers, October 11, 1888. Scale, 1,000 ft. to 1 in.

1889. Map of San Diego County. Compiled in the office of H. L. Ryan and T. H. Humphreys for Dodge & Burbeck. San Diego, 1889. Scale, 5 m. to 1 in.

1889. Official map of San Diego County, by T. D. Beasley. Scale, 3 m. to 1 in. San Francisco, 1889.

[No date.] Map showing water, roads, and trails in the vicinity of the international line between United States and Mexico, between El Paso, Texas, and San Diego, California, by Lieut. D. D. Gaillard. Scale, 10 m. to 1 in. U. S. Engineer Corps. 2 sheets. n. d.

1890. Map of San Diego and Coronado Beach. No scale. Copyright 1890.

1890. Map showing the lines of the harbor embankment and seawall, also the pierhead lines of the harbor of San Diego, as established by the Board of State Harbor Commissioners for the Bay of San Diego, the Governor of the State of California, the Mayor of the city of San Diego, and the President of the Board of Trustees of National City, March 7, 1890. Scale, 1 m. to 3 in.

1891. Amended map of La Mesa colony, San Diego County, California. Wm. H. Fitzhugh and J. M. Graham, engineers. Contour lines marked with heights above sea-level. Los Angeles Lithographic Co.

1892. Map of San Diego County, Cal. Compiled from official county map by T. D. Beasley. Scale, 5½ m. to 1 in. Published by Dodge & Burbeck. San Diego, 1892.

1895. Map of San Diego City, Cal., showing portion of city south of river and west of Thirty-second street. Published by S. E. Hoffmann & Co., 1895. Scale, 1,000 ft. to 1 in.

1897. Map of the city of San Diego, Cal., by Louis Arey, showing all subdivisions filed for record. Scale, 1,000 ft. to 1 in. San Diego, 1897.

[No date.] Map of San Diego and vicinity, by Eugene Frandzen. San Diego. Scale, 6 m. to 1 in. n. d.

[No date.] Official map of San Diego County, California. Compiled from official records and private sources by Irving A. Hubon. Scale, 2 m. to 1 in. Published by Edward M. Burbeck, San Diego. n. d.

[No date.] Map of Coronado Beach, San Diego, Cal. Scale, 300 ft. to 1 in. Rand & McNally, Chicago. n. d.

This map gives a small map of the surrounding country; it was published by the Coronado Beach Company.

1900. Map of that part of the Colorado Desert in California, United States, and Lower California, Mexico, known as the New River country. Compiled by Thomas H. Silsbee from personal knowledge and from map of the United States and Mexican governments. San Diego, Cal., May, 1900. Scale, 3 m. to 1 in. Blue-print.

1902. Map of San Diego County. Scale, 2 m. to 1 in. Register of Mines and Minerals, California State Mining Bureau. Sacramento, 1902.

SAN FRANCISCO.

1849. Official map of San Francisco. Compiled from the field notes of the official re-survey made by Wm. M. Eddy. Entered according to Act of Congress in the year 1849 by Henry Reed in the clerk's office of the District Court of the United States, for the southern district of New York. Drawn by Alex. Zakrzewski, ex-Polish officer. (Michelin, N. Y., lith.) Scale, 550 ft. to 1 in.

1849. Plan of south San Francisco. 1849. A true copy of an original map, copied at the request of O. H. Frank, County Recorder, on November 19, 1875. Scale, 400 ft. to 1 in. (Sarony & Major, lith.)

1849. Map of the bay of San Francisco and the gold region, from actual survey June, 1849, by J. T. Jarvis. Published by James Monroe & Co., Boston. Scale, 30 m. to 1 in.

[185--.] Official map of the city of San Francisco. Published by LeCount & Strong. [n. d.] Scale, 266 varas (nearly 295 yards) to 1 in.

Larkin street forms the western boundary. Published probably early in the fifties.

1851. Complete map of San Francisco. Compiled from the original map, the recent surveys of W. M. Eddy, County Surveyor, also the Western Addition surveyed by S. K. Marlette, C.E. Containing all the latest extensions and improvements, new streets, alleys, etc. Respectfully dedicated to the citizens of San Francisco by Alex. Zakresi and Hartman, lithographers. 1851. Published by S. K. Marlette, C.E., and by Alex. Zakresi and Hartman. Scale, 266 varas (nearly 295 yards) to 1 in.

1851. Official map of the city of San Francisco, full and complete to present date. Compiled by Wm. M. Eddy, city surveyor, January 15, 1851. (B. F. Butler, lith.) Scale, 800 ft. to 1 in.

1852. Complete map of San Francisco. Compiled from the original map, from the latest surveys, containing all the latest extensions and improvements, new streets, alleys, places, wharves, etc. Published by Cook & LeCount. 1852. Scale, 266 varas (nearly 295 yards) to 1 in.

1852. Map of the city and county of San Francisco. Compiled from official sources and sectionalized in accordance with U. S. surveys, by V. Wackenreuder. Scale, ½ m. to 1 in.

1853. Map of the northern portion of San Francisco County. Compiled from surveys, June 1, 1852, by Clement Humphreys, county surveyor, January, 1853. Lith. by B. F. Butler, San Francisco. Scale, about 2-3 m. to 1 in.

1853. Topographical and complete map of San Francisco. Compiled from the original map, from the recent surveys of W. M. Eddy, county surveyor, and others, containing all the latest extensions and improvements, new streets, alleys, places, wharves, etc. Respectfully dedicated to the citizens of San Francisco. 1853. Lith. by Alex. Zareski & Co. For sale by Cooke, Lenny & Co., San Francisco. No scale. Size, 20x17 in.

1854. New edition of Eddy's map, "complete to January 15, 1854."

1854. Map of the city of San Francisco. Compiled from records and surveys by R. P. Bridgens. Respectfully dedicated to the citizens by the publisher, M. Bixby. 1854. Scale, 400 ft. to 1 in.

1854. Butler's map of the city of San Francisco, Cal. Compiled from the official map and from recent surveys, with all the improvements and additions, showing the streets, with the buildings carefully laid down from actual measurement, as well as the dimensions and configuration of each lot. Published by Nathaniel Gray. 1854. [Cop. by B. F. Butler.] Scale, 300 ft. to 1 in.

1855. Wheeler's topographical map of San Francisco County, surveyed by Vitus Wackenreuder for Alfred Wheeler. Published and copyrighted by Marriott & Wheeler. San Francisco, 1855. Engraved by W. E. Goldsmith and E. Moody. Scale, 2 m. to 1 in.

Embraces also what is now San Mateo County.

1859. True and correct map of the city and county of San Francisco, California. Published by the Noisy Carrier, January 1, 1859. (Bradford, Bost., lith.) No scale. Size 36x30 in.

The "Noisy Carrier" was Charles P. Kimball.

1859. Official map of the city of San Francisco, California. Published by Josiah J. LeCount, San Francisco. Approved by George R. Turner, city and county surveyor. 1859. Scale, 500 varas (nearly 555 yards) to 1 in.

1860. Map of the country forty miles around San Francisco, exhibiting the county lines and correct plats of all the ranchos finally surveyed and of the public land sectionalized. Compiled from U. S. surveys by Leander Ransom. San Francisco. [cop. 1860.] Scale, 4 m. to 1 in.

1861. Plot and profile of the San Francisco and San Mateo Railroad. V. Wackenreuder, chief engineer. 1861. Scale, ½ m. to 1 in.

Includes the whole peninsula.

1861. Map of the city and county of San Francisco. Compiled from official surveys, etc., by V. Wackenreuder. 1861.

1863. Map of the city and county of San Francisco. Compiled from official surveys and sectionalized in accordance with U. S. surveys. Drawn by V. Wackenreuder. 1863. Scale, ½ m. to 1 in.

1863. Map of the city and county of San Francisco. Carefully compiled for the S. F. News Letter and the Pacific Mining Journal by James Butler. 1863. Scale, 20 chains to 1 in.

1865. Map of San Francisco from surveys by the board of city engineers. Under and by virtue of an act of the legislature of the State of California, approved April 26, 1862. [Published by H. H. Bancroft & Co.] San Francisco, 1865. Scale, 400 ft. to 1 in.

1866. Map of the city of San Francisco, from surveys by the board of city engineers. Under and by virtue of an act of the legislature of the State of California, approved April 26, 1862, and acts supplementary to and amendatory thereof, 1864. Made official by the Board of Supervisors as per order No. 684, January 30, 1866. George C. Potter, city and county surveyor, Thaddeus R. Brooks, board of city engineers. Scale, 400 ft. to 1 in.

1868. Plat of the pueblo of San Francisco finally confirmed to the city of San Francisco by an Act of Congress approved March, 1866. James T. Stratton, dep. surveyor. Surveyed between March, 1867, and January, 1868. [No scale.] Size, 14x12 in.

1868. Bancroft's mercantile map. Compiled by Hn. Nanitz. San Francisco, 1868. No scale.

[1868.] Map of the outside lands of the city and county of San Francisco, showing reservations selected for public purposes under provisions of Order No. 800 [Jan., 1868]. [No scale.] Size, 28x20 in. (Britton & Rey, lith.)

1868. [See also San Mateo, 1868.]

1869. City and county map. Compiled from U. S. land and coast surveys, from the official surveys of the city, the outside lands, the tide land commission and the homestead association, by G. H. Goddard. 1869. Lithographed and published by Britton & Rey. San Francisco. [No scale.] Size, 28x21 in.

1869. Map of a portion of Bernal rancho [South San Francisco], including all the gift maps, Precita valley lands, etc. Compiled by John C. Colquhoun, C.E. July, 1869. No scale. Size, 36x30 in.

1870. Official map of the city and county of San Francisco, prepared by William P. Humphreys, city and county surveyor. Published by Britton & Rey. San Francisco, 1870. Scale, 1,000 ft. to 1 in.

Also published in 1878. Revised in 1884.

1872. Bancroft's official guide map of the city and county of San Francisco. Compiled from official maps in the surveyor's office. Published by A. L. Bancroft & Co. San Francisco, 1872.

1876. Atlas of the city and county of San Francisco from actual surveys and official records. Compiled and published by Wm. P. Humphreys & Co. 1876. 63 sheets.

1877. New and improved street map of the city of San Francisco, constructed on an entirely new principle, showing: (1) The streets, avenues, courts, lanes, [etc.]; their names, official grades, extent graded, house numbers, fire-alarm numbers, position of U. S. mail and Wells, Fargo & Co.'s letter-boxes, etc. (2) The public squares, parks, cemeteries, military reservations, fortifications. (3) Railroad depots, railroads, street-car lines, distances in operation, ferry connections. (4) Ferry landings, wharf accommodations, names of wharves, water-front improvements, etc. (5) Political wards, their size, number, and relative positions. (6) Distances of all parts of the city from Lotta's fountain. (7) General directory to the churches, halls, public schools, banks, hotels, theaters, libraries, U. S. offices, municipal offices, etc. Drawn, compiled and published by Fred Thomas Newbery, C.E. 1877. [No scale.] Size, 28x40 in.

1878. [See Humphrey's 1870 map, *ante.*]

1882. Map of the city and county of San Francisco. Drawn by J. C. Henkenius. Published by Warren Holt. San Francisco, 1882. Scale, 800 ft. to 1 in.

1884. Index map of the city of San Francisco. Assessor's office, 1884. Compiled by L. P. Holtz, city and county assessor. Scale, 1,000 ft. to 1 in.

Many other similar index maps have been published of which I have seen those dated 1867, 1878, 1879, and 1881. The 1867 map was "arranged by V. Wackenreuder."

1884. [See Humphrey's 1870 map, *ante.*]

1884. Map of the city and county of San Francisco. Published by Warren Holt. 1884. Scale, 800 ft. to 1 in.

[No date.] Bird's-eye view of San Francisco and surrounding country. Published by Snow & May. No scale. Size, 34x48 in.

To this a key was published separately.

1889. New edition of Holt's map.

1894. Map of San Francisco, showing the water service of Spring Valley Water Works. Scale, 2,000 ft. to 1 in. San Francisco Municipal Reports, 1899-1900.

1899. General map of Spring Valley Water Works, Hermann F. Schussler, chief engineer. San Francisco Municipal Reports, 1899-1900.

SAN FRANCISCO BAY AND INFLUENTS.

1851. Series of charts, with sailing directions, embracing surveys of the Farallones, entrance to the bay of San Francisco, bays of San Francisco and San Pablo, straits of Carquinez and Suisun Bay, confluence and deltic branches of the Sacramento and San Joaquin rivers, and the Sacramento River (with the Middle Fork) to the American River, including the cities of Sacramento and Boston, State of California. By Cadwalader Ringgold, commander U. S. N. Wash., 1851.

With views. Six charts, drawn by Fred D. Stuart. No scale.

SAN FRANCISCO BAY.

1869. Salt marsh and tide lands situated in the city and county of San Francisco, by George F. Allardt, surveyor. 1869. No scale.

A large number, twelve or more, of sale maps were published by order of the Board of Tide Land Commissioners, between 1869 and 1872.

SAN FRANCISCO AND SAN PABLO BAYS.

[1875?] Map of salt marsh, tide, and submerged lands of San Francisco and San Pablo bays. By T. J. Arnold, by order of the State Harbor Commission. No date [about 1875]. Scale, 1:50,000.

SAN JOAQUIN.

1862. Index [land] map, showing all tracts of land purchased or located upon to April 1, 1862; character of original titles. Compiled from the books of the U. S. Land Office, and from surveys of D. Beaumont, G. E. Drew, Jos. P. Neall. Drawn and published by H. P. Handy. 1862.

1870. [Official] map, compiled by John Wallace. 1870. Scale, 1 m. to 1 in.

1883. Map of the county of San Joaquin, California. Compiled from official sources and the books of R. E. Wilhoit, searcher of records, Stockton, Cal., by John C. Reid. 1883. Engraved by S. B. Linton, Philadelphia. Approved and declared official Sept. 18, 1882. Scale, 1 m. to 1 in.

1895. Map of San Joaquin County. Compiled from U. S. surveys, etc., by H. T. Compton. 1895. Scale, 4,000 ft. to 1 in.

SAN JOAQUIN (STOCKTON CITY).

1861. Map of the city of Stockton and environs, with additions and corrections to March, 1861, by Duncan Beaumont. Published by Kierski & Bro. Scale, 200 ft to 1 in.

SAN JOAQUIN VALLEY.

1869, 1871. Map of San Joaquin Valley, from the latest and most authentic sources and from actual surveys. Drawn and published by M. Walthal, agent for land claimants, Stockton, August, 1869. Revised edition, Aug., 1871. Scale, 12 m. to 1 in.

1882. Map of the lower portions of the Sacramento and San Joaquin rivers, California, showing tributary streams draining hydraulic mining districts. Scale, 12 m. to 1 in. 47th Cong., 1st sess., Doc. No. 98, 1882.

1885. Detailed irrigation map, by Wm. Ham. Hall. 10 sheets.

1886. California State Engineering Department. Topographical and irrigation map of the San Joaquin Valley. Wm. Ham. Hall, State Engineer. 1886 4 sheets. Scale, 3 m. to 1 in.

[No date.] Map of the San Joaquin Valley. Compiled and published by R. H. Stretch. San Francisco. n. d. Scale, [about] 18 m. to 1 in.

1894. Stockton—Bellota drainage district. By Commissioner of Public Works, Sacramento. 1894. Scale, 1 m. to 1 in.

SAN LUIS OBISPO.

1874. Map of the county of San Luis Obispo, California. Carefully compiled from actual surveys and published by R. R. Harris, county surveyor. 1874. Approved and declared official, September, 1874. (Britton, Rey & Co., lith.) Scale, 2 m. to 1 in.

1890. Map of the county of San Luis Obispo. Compiled by C. W. Henderson. 1890. Scale, 2 m. to 1 in.

1903. Geological map of quicksilver districts in northwestern portion of county. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

SAN MATEO.

1868. Official map of San Mateo County, including the city and county of San Francisco, with all new additions of cities, towns, and villas, delineating the lines of ranches, private claims, waterworks, railroads, etc. Carefully compiled from actual surveys and published by A. S. Easton, county surveyor, 1868. Approved and declared to be the official map by a resolution passed October 3, 1864 [*sic*] by the Board of Supervisors. Scale, 40 chains to 1 in. (Britton & Rey, lith.)

1871. Official map of the town of Redwood City. Carefully compiled by H. S. Smith. 1871. [Scale, 200 ft. to 1 in.]

1877. Official map of the county of San Mateo, California, showing the new boundary line, and delineating the lines of cities, towns, private claims, ranches, waterworks and railroads. Carefully compiled by J. J. Cloud, county surveyor. 1877. Drawn by Walter M. Kerr. (Britton, Rey & Co., lith.) Scale, 50 chains to 1 in.

See also Wheeler's 1855 map, Wackenreuder's 1861 map, and various U. S. Coast Survey maps, of San Francisco.

1894. Official map of San Mateo County. Compiled and drawn by D. Bromfield. 1894. Scale, ½ m. to 1 in.

SANTA BARBARA.

[187--?] Official surveys of ranches, etc. Compiled by W. H. Norway. No date. (Britton & Rey, lith.)

"Probably issued prior to 1873."

1878. [Map of Santa Barbara County, California. Compiled by A. S. Cooper. 1878.]

Not printed, but photographed.

1889. Official map of Santa Barbara County. Compiled by Paul Riecker. 1889. Scale, 5-6 m. to 1 in.

SANTA CLARA.

1866. Official map of the county of Santa Clara, California. Surveyed and compiled by C. T. Healey, ex-county surveyor, 1866. Published by A. Gensoul, San Francisco. Scale, 1½ m. to 1 in. (Britton & Rey, lith.)

1884. Map; compiled for the Santa Clara Valley Land Agency. Offices: R. L. Higgins, Santa Clara; J. E. Fisher, San Jose. [cop. 1884.] Scale, [about 2 m. to 1 in.].

1887. Map of Santa Clara County. Compiled by Bailey & Phillips; published by Bancroft. San Francisco, 1887.

1890. Official map of Santa Clara County. Compiled by A. T. & C. Herrmann. 1890. Scale, about 1 m. to 1 in.

1903. Geological map of Stayton mining district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Map of New Almaden mining district. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

SANTA CLARA (SAN JOSE CITY).

1872. Map of the city of San Jose. Published by George H. Hare. San Jose, 1872. Compiled from official city surveys by Wm. Pieper. Scale, 600 ft. to 1 in.

SANTA CRUZ.

The county is included in the State Geological Survey's 1873 map of central California.

1890. Official map of Santa Cruz. Compiled from U. S. government surveys, etc., by A. J. Hatch. Scale, 50 chains to 1 in. 1890.

SHASTA.

1862. Official map of Shasta County, approved by the Board of Supervisors, February term, 1862. [No compiler.] Scale, 3 m. to 1 in.

1884. Official map, approved by the Board of Supervisors, October 6, 1884. (Schmidt Label and Lith. Company.) [No compiler. No scale.] Size, 45x30 in.

See the following atlas sheets of the topographical map published by the U. S. Geological Survey, J. W. Powell, director, 1886: Shasta, Lassen Peak, Modoc lava-bed, Red Bluff sheets. Scale, 4 m. to 1 in.

1891. Official county map. Compiled from official records by C. R. Briggs. 1891. Scale, 1½ m. to 1 in.

1902. Map and Register of Mines and Minerals of Shasta County. Published by State Mining Bureau, 1902 Scale, 3 m. to 1 in.

Map showing all agricultural lands in Shasta valley for sale or lease by Fs. G. Burke. San Francisco. n. d. Scale, 1 m. to 1 in. (Britton & Rey, lith.)

SIERRA.

1867. Map of the county of Sierra, with an indication of the courses of the ancient river channels. Compiled from surveys of James, Dodson, and Jones, by Crossman & Cochrane, by request of Prof. W. P. Blake. Approved by the Board of Supervisors. 1867. No scale. Size, 28x20 in.

1874. Topographical map. Compiled from official surveys by Charles W. Hendel, U. S. depy. mineral surveyor for California. 1874. Scale, 1½ m. to 1 in. (Britton & Rey, lith.)

1903. Map and Register of Sierra County. Published by State Mining Bureau. 1903. Scale, 1½ m. to 1 in.

An economic geological map of western half of Sierra County is included in this report.

SISKIYOU.

Eastern and north-central Siskiyou are topographically mapped by the U. S. Geological Survey, J. W. Powell, director, 1886, on Modoc lava-bed and Shasta atlas sheets. Scale, nearly 4 m. to 1 in.

1887. Official map of Siskiyou County, State of California. Carefully compiled by J. M. Davidson from actual surveys. 1887. (Bancroft, lith.) Scale, nearly 2 m. to 1 in.

With plans of Yreka and other towns.

1894. Map of the auriferous conglomerate deposit of Siskiyou County. Issued by California State Mining Bureau. 1894. Scale, 1 m. to 1 in.

1898. Map of Siskiyou County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines of Siskiyou County. 1898.

SOLANO.

1872. [Official] map by J. S. Henning. 1872. Scale, 60 chains to 1 in. (Britton & Rey, lith.)

1890. Official map of Solano County, showing Mexican grants, U. S. government and swamp land surveys, present private land ownerships, etc. Compiled by E. N. Eager. Corrected to 1890. Scale, 60 chains to 1 in.

SONOMA.

1867. Map of Sonoma County, California. Made and published by A. B. Bowers, in accordance with an act of the legislature approved March 28, 1863. With additions and corrections to September 1, 1867. 2d edition. Scale, 1 m. to 1 in. (E. Fletcher, lith.)

1882. *Same.* With additions and corrections to September 1, 1882.

1884. [Official] map, carefully compiled from the latest authorities by R. A. Thompson. 1884. Scale, 2 m. to 1 in. (Phila. lith.)

1897. Illustrated atlas of Sonoma County, with sectional maps. Published by Reynolds & Proctor. Scale, ½ m. to 1 in.

1903. Geological map of portions of quicksilver districts. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

1903. Geological map of Sonoma County quicksilver deposits. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

STANISLAUS.

1877. Map of the county of Stanislaus, California. Compiled from United States and county surveys and public records by G. W. Smith and P. Y. Baker, civil engineers, Visalia, Cal. 1877. (Britton, Rey & Co., lith.) Scale, 80 chains to 1 in.

1895. Map of Stanislaus County. Compiled from United States and county surveys. Scale, 5-6 m. to 1 in.

SUTTER.

1873. Official map of Sutter County, California. Compiled and drawn from official surveys by J. T. Pennington, civil engineer. 1873. Scale, 1 m. to 1 in.

1895. Official map of Sutter County. Compiled and drawn by Punnett Bros. Scale, 7/8 m. to 1 in.

TEHAMA.

Northern Tehama is topographically mapped by the U. S. Geological Survey, J. W. Powell, director, 1886, on Lassen Park and Red Bluff sheets. Scale, nearly 4 m. to 1 in.

1878. Official map of the county of Tehama, California. Carefully compiled from actual surveys by H. B. Shackelford and F. J. Nugent. 1878. (Britton & Rey, lith.) No scale. Size, 58x35 in.

1887. Official map of Tehama County. Compiled by H. B. Shackleford. Scale, 1½ m. to 1 in.

TRINITY.

Eastern and northeastern Trinity are topographically mapped by the U. S. Geological Survey, J. W. Powell, director, 1886, on Red Bluff and Shasta atlas sheets. Scale, nearly 4 m. to 1 in.

1898. Map of Trinity County. Scale, 2 m. to 1 in. State Mining Bureau, Register of Mines of Trinity County.

1894. Official map of Trinity County. Compiled from government and local surveys by H. L. Lowden and J. F. Johnson. 1894. Scale, 2 m. to 1 in.

TULARE.

1867. Map, from surveys by Henry Chapman and J. A. Gordon. 1867. Scale, 3 m. to 1 in. (Britton & Rey, lith.)

1876. [Official] map by P. Y. Baker. 1876. Scale, nearly 2 m. to 1 in.

1883. Map of Tulare County, State of California, made by Alfred Bannister, C.E., in accordance with an order of the honorable Board of Supervisors, dated November 8, 1883. 1884. Scale, 2 m. to 1 in.

1884. Map of Tulare County, California. Made by Alfred Bannister. Scale, 2 m. to 1 in.

1901. Official map of Tulare County, California. Compiled by Seth Smith. 1901. Scale, 1 1-3 m. to 1 in.

1902. Map of saline deposits of the southern portion of California. Accompanying Bulletin No. 24, State Mining Bureau, 1902.

Topographical and irrigation map of portions of Tulare County. Issued by the California State Engineering Department, Wm. Ham. Hall, Chief Engineer. Scale, 1 m. to 1 in.

TUOLUMNE.

1879. Official map, by J. P. Dart. 1879. Scale, 1 m. to 1 in. (A. L. Bancroft & Co., lith.)

1879. Map of the principal quartz and gravel mines in Tuolumne County, California. Taken from government surveys and mining records by J. P. Dart, M.E. 1879. Scale, 1 m. to 1 in. (A. L. Bancroft, lith.)

1899. Mining map of Tuolumne County, by A. M. Reynolds. Accompanying California Mines and Minerals souvenir edition by California Miners' Association. Scale, 1 m. to 1 in.

1903. Map and register of mines and minerals of Tuolumne County. Issued by State Mining Bureau, 1903. Scale, 2½ m. to 1 in.

An economic geological map of western portion of Tuolumne County is bound in Register.

VENTURA.

1897. Official map of Ventura County. Compiled by G. C. Power. 1897. Scale, 80 chains to 1 in.

YOLO.

1871. [Official] map, by J. S. Henning. May, 1871. No scale. Size, 51x42 in. (Britton & Rey, lith.)

The same map is republished with same date by "Henning & Sandford."

1879. Official map of Yolo County, California. De Pue & Co., publishers and compilers, Oakland, Cal. Adopted by the Board of Supervisors November 6, 1879. W. T. Galloway, lith., San Francisco. No scale. Size, 54x54 in.

1891. Official map of Yolo County. Compiled by H. C. Miller. 1891. Scale, 60 chains to 1 in.

1900. Official map of Yolo County. Compiled by P. N. Ashley. Scale, 1 1-3 m. to 1 in.

1903. Geological map of Yolo County quicksilver deposits. Accompanying Bulletin No. 27, State Mining Bureau, 1903.

YUBA.

1856. Official map of the city of Marysville, California. Compiled by N. Wescoatt and W. S. Watson. 1856. No scale.

1861. Official map of Yuba County, California. Compiled and drawn from official surveys by N. Wescoatt, county surveyor. Scale, 1 m. to 1 in. (Britton & Rey, lith.)

1882. Map of Yuba River, showing the flooded lands adjacent thereto and impounding reservoir of mining districts, from surveys in 1879. State Eng. Dept. 1879. Scale, 10 m. to 1 in. 47th Cong., 1st sess., Doc. No. 98, 1882, Mendenhall's Report mining debris in California rivers.

1887. Official map of Yuba County. Compiled and drawn by J. M. Doyle. Scale, ¾ m. to 1 in.

YOSEMITE VALLEY.

1865. Map of the Yosemite Valley, from surveys made by order of the Commissioners to Manage Yosemite Valley and Mariposa Big Tree Grove, by C. King and J. T. Gardner. 1865. Drawn by J. T. G. Scale, ½ m. to 1 in.

[1867.] Map of a portion of the Sierra Nevada adjacent to the Yosemite Valley, from surveys made by C. F. Hoffmann and J. T. Gardner, 1863-7. Geological Survey of California, J. D. Whitney, State Geologist. Scale, 2 m. to 1 in.

LAKE TAHOE.

1874. Topographical map of Lake Tahoe and surrounding country. Compiled from the best authorities by Ferdinand v. Liecht and J. D. Hoffmann. San Francisco, 1874. Scale, 2 m. to 1 in.

1881. Topographical map of Lake Tahoe region, Sierra Nevada, California, and Nevada. U. S. geographical surveys west of the 100th meridian, expeditions of 1876 and 1877 under the command of First Lieutenant George M. Wheeler, corps of engineers, U. S. Army. Reduced by heliogravure at Imp. Royal Institute, Vienna, 1881, from original on scale of 1 m. to 1 in. Scale, nearly 2 m. to 1 in.

UNITED STATES COAST SURVEY CHARTS.

Table of Scale Equivalents.—The following table gives the lengths of statute miles on the several scales, these scales being the proportionate size of the chart to nature. That is, in the scale 1 : 1,200, the chart is one twelve-hundredth part of the actual linear dimensions in nature (or 100 feet to the

inch), equal to 60.8 inches to a nautical mile, and 52.8 inches to a statute mile. A nautical mile is a minute of an average great circle of the earth, and its length is 6,080 feet, or 1853.2 metres. A statute mile is 5,280 feet, or 1609.3 metres. 1 metre equals 39.37 inches; 1 centimetre equals 0.3937 of an inch; 1 inch equals 2.54 centimetres.

Scale.	Statute Mile.
1 : 1,200	52.800 inches
1 : 2,400	26.400 inches
1 : 4,800	13.200 inches
1 : 5,000	12,672 inches
1 : 10,000	6.336 inches
1 : 15,000	4.224 inches
1 : 20,000	3.168 inches
1 : 30,000	2.112 inches
1 : 40,000	1.584 inches
1 : 50,000	1.267 inches
1 : 60,000	1.056 inches
1 : 80,000	0.792 inches
1 : 100,000	0.634 inches
1 : 200,000	0.317 inches
1 : 400,000	0.158 inches
1 : 1,000,000	0.063 inches
1 : 1,200,000	0.053 inches

Anacapa Island, and east end of Santa Cruz Island, California. Preliminary survey. Topography by W. M. Johnson. Hydrography by the party under Lieut. Comdg. J. Alden, U. S. N. 1856. Scale, 1 : 30,000.

—— *Same.* 1879; corr. to 1884.

Anacapa Island. Sketch by Lieut. T. H. Stevens, U. S. N. 1854. No scale.

Blunt's Reef. *See* Cape Mendocino.

Bodega Bay, California. 1862. Scale, 1 : 30,000.

—— *Same.* 1864. (More complete topography.)

—— *Same.* Corr. to 1884.

Cape Mendocino and Blunt's Reef, California. 1877. C. P. Patterson, superintendent. Triangulation and topography by A. F. Rodgers, 1869-71. Hydrography, by C. Bradford, 1872. Scale, 1 : 40,000.

Cape Mendocino and vicinity, California. Published June, 1896. W. W. Duffield, superintendent. Scale, 1:40,000. (Date of first publication, 1889.)

Caspar Anchorage and approaches. 1896. Scale, 1:10,000.

Catalina Harbor, California. Reconnoissance by the hydrographic party under command of Lieut. James Alden, U. S. N. 1852. Scale, 1:15,000.

With a view.

Catalina Harbor and Isthmus Cove, Santa Catalina Island, California, 1875. C. P. Patterson, superintendent. Topography by A. M. Harrison and A. W. Chase, 1853, 1873. Hydrography by C. P. Johnson, 1873. Scale, 1:15,000.

—— Published November, 1891. T. C. Mendenhall, superintendent. Scale, 1:10,000.

Cordell Bank, off Point Reyes, California. 1869. Scale, 1:200,000.

—— *Same.* Corr. to 1884.

Cortez Bank, California. By the hydrographic party under Lieut. James Alden, U. S. N. 1853. Scale, 1:10,000.

Coxo Harbor. *See* Santa Cruz.

Crescent City Harbor, California. 1859. Scale, 1:20,000.

See also Mendocino City; St. George's Reef.

Cuyler's Harbor. *See* San Clemente.

Drake's Bay, California. Preliminary chart. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1860. Scale, 1:40,000.

—— *Same.* 1879; corr. to 1884.

Fort Ross Cove, California. 1879. Triangulation and topography by L. A. Sengteller, 1876. Hydrography by G. W. Coffin, U. S. N. 1879. Issued June, 1881. Scale, 1:6,000.

Half Moon Bay, California. Preliminary chart. From a trigonometrical survey by A. F. Rodgers, assistant. 1863. Scale, 1:20,000.

—— *Same.* [Completed topography, etc.] 1863.

—— *Same.* 1879; corr. to 1884.

Humboldt Bay, California. Preliminary survey. 1858. Scale, 1:30,000.

—— *Same.* 1879; corr. to 1884.

—— 1899. Scale, 1:30,000.

Mare Island straits, California. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1859. Scale, 1:30,000.

—— *Same.* Resurvey of straits by A. F. Rodgers. 1874. Scale, 1:10,000.

—— *Same.* 1876; corr. to 1886.

—— 1876. C. P. Patterson, superintendent. Hydrography by the party under H. C. Taylor, Lieut. Comdr. U. S. N., 1876. Scale, 1:10,000.

—— *Same.* Corr. to 1884.

—— 1900. Scale, 1:10,000.

Mendocino Bay, California. 1874. C. P. Patterson, superintendent. Triangulation, topography, and hydrography by L. A. Sengteller, 1871-2. Scale, 1:10,000.

Mendocino City Harbor, California. 1854. Geographical positions by G. Davidson. Topography by A. M. Harrison. Hydrography by party under Lieut. James Alden, U. S. N. 1854. Scale, 1:20,000.

On same sheet are: Port Orford, Oregon; Shelter Cove, California; Crescent City harbor, California.

Mendocino Bay. 1890. Scale, 1:10,000.

Monterey Bay, California. Preliminary chart From a trigonometrical survey under direction of A. D. Bache, superintendent. 1857. Scale, 1:60,000.

The finished chart appeared in the same year. New ed. 1878; corr. to 1884.

Monterey Harbor, California. Published in 1852. Scale, 1:40,000.

With view of Point Pinos.

—— *Same.* Corr. to 1884.

Napa and Petaluma Creeks, California. Published 1897. From a trigonometrical survey under the direction of A. D. Bache, superintendent of the survey of the coast of the United States. Scale, 1:30,000. Reissued from March, 1882.

Newport entrance, Los Angeles County, California. 1878. Issued November, 1880. Corr. to 1886. Authorities, A. W. Chase, assistant in 1875, Lieut. E. H. C. Leutze, U. S. N., in 1878. Scale, 1:20,000.

Northwest coast of America. 1868. Compiled from British and Russian authorities with additions from a reconnoissance by G. Davidson, assistant. Scale, 1:1,200,000.

Sheet 1. Cape Flattery to Dixon entrance.
Sheet 2. Dixon entrance to Cape St. Elias.
Sheet 3. Icy bay to Seven islands.

See also Pacific Coast; Western coast.

Pacific Coast. Cape Mendocino to Point St. George, California. Published June, 1896. T. C. Mendenhall, superintendent. Scale, 1:200,000. (Date of first publication, 1891.)

—— Kasler's Point to Point Carmel, California. Reproduction of original sheets. By E. F. Dickins and Lieut. W. T. Swinburne, 1876-83. Issued July, 1885. Scale, 1:12,000.

Pacific Coast. Point Carmel to Point Pinos, California. Reproduction of original sheets. Triangulation and topography by E. F. Dickens, 1876. Hydrography by Lieut. W. T. Swinburne, U. S. N., 1883. Issued July, 1885. Scale, 1 : 12,000.

—— Point Pinos to Bodega Head, California. From a trigonometrical survey published in 1862. Corrected to 1886. Scale, 1 : 200,000.

Includes bay of San Francisco.

—— *Same.* 1889.

—— San Diego to Santa Monica, including the Island of Santa Catalina, California. Published March, 1890. T. C. Mendenhall, superintendent. Scale, 1 : 200,000.

—— San Francisco to Point Arena, California. 1885. [From surveys made 1850-1883.] Scale, 1 : 200,000.

—— Santa Monica to Point Conception, including the Santa Barbara channel [and islands]. 1882; corr. to 1886. Scale, 1 : 200,000.

—— Santa Rosa to Point Buchon, California. 1886. Issued June, 1886. F. M. Thorn, superintendent. Scale, 1 : 200,000.

See also Northwest coast; Western coast.

Petaluma Creek. *See* Napa and.

Point Buchon to Point Pinos, California. Published June, 1893, by the U. S. Coast and Geodetic Survey. Scale, 1 : 200,000.

Point Conception, California. Sketch by A. M. Harrison, sub-assistant. 1850. Scale, 1 : 40,000.

Point Pinos, bay of Monterey, California. Sketch indicating lighthouse sites, by A. M. Harrison, sub-assistant. 1851. Scale, 1 : 20,000.

Point Reyes and Drake's Bay, California. Preliminary survey. 1855. Scale, 1:80,000.

Point Sal, California. 1867. Scale, 1:20,000.

Prisoner's Harbor. *See* San Clemente.

St. George's Reef and Crescent City, California. Benjamin Peirce, superintendent. 1872. Scale, 1:40,000.

—— *Same.* 1875; corr. to 1886.

San Clemente Island, California. Southeast anchorage. From a reconnoissance in 1856 by Lieut. James Alden, U. S. N. Reissued 1877. Scale, 1:20,000.

San Clemente, Prisoner's, and Cuyler's harbors, California. Reconnoissance by the hydrographic party under Lieut. James Alden, U. S. N. 1852. Scale, 1:20,000. Reissued in 1883.

San Diego Bay, California. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1859. Scale, 1:40,000.

—— *Same;* corr. to 1877, 1884.

—— Published at Washington, D. C., October, 1900, by the U. S. Coast and Geodetic Survey, Henry S. Pritchett, superintendent. (Date of first publication, 1859.) Scale, 1:40,000.

San Francisco, 1853. U. S. Coast Survey, A. D. Bache, superintendent. City of San Francisco and its vicinity, California. From a trigonometrical survey by R. D. Cutts, assistant. Topography by A. F. Rodgers, subassistant. Hydrography by the party under Lieut. James Alden, U. S. N. Published in 1853. Scale, 1:10,000.

Survey was completed by April, 1852. The interior topography is taken from Eddy's official map.

San Francisco, 1857. U. S. Coast Survey, A. D. Bache, superintendent. City of San Francisco and its vicinity, California. From a plane table survey by A. F. Rodgers, sub-assistant. 1857. Scale, 1:10,000.

Does not embrace the entire county.

——— *Same.* Surveyed by A. F. Rodgers, sub-assistant in 1857. Scale, 1:10,000.

Differs from preceding.

——— 1859. U. S. Coast Survey, A. D. Bache, superintendent. City of San Francisco and its vicinity, California. Topography by A. F. Rodgers, sub-assistant. Hydrography by the party under Lieut. R. M. Cuyler, U. S. N. Published in 1859. Scale, 1:10,000.

San Francisco Bay, California. Upper [southern] part. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1862. Scale, 1:50,000.

San Francisco Bay entrance, California. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1859. Scale, 1:40,000.

——— *Same.* 1883; corrected to 1884.

Includes the bay, also the city, of San Francisco, and part of Marin County. With views and sub-sketch of entrance.

San Francisco Bay entrance, California. 1884; corrected to 1886. [From surveys made 1850-1882.] Scale, 1:40,000.

Includes the bay, also the city, of San Francisco, and that part of Marin County south of Mt. Tamalpais. Topography complete, and more numerous soundings than 1859 chart. Without views.

San Francisco Bay entrance, California. Published February, 1897, by W. W. Duffield, superintendent. (Date of first publication, 1884.) Scale, 1:40,000.

San Francisco Peninsula. Reduced from surveys made by R. D. Cutts, A. M. Harrison, and A. F. Rodgers, assistants between 1850 and 1857, embracing the topography adjacent to the ocean and bay; and from supplementary surveys of the interior, made in 1867 and 1868 by A. F. Rodgers and C. Rockwell, assistants. 1869. Scale, 1:40,000.

San Juan Capistrano. 1890. Scale, 1:10,000.

San Luis Obispo Bay and approaches, California. 1876. C. P. Patterson, superintendent. By L. A. Sengteller, 1871-5. Astronomical observations by G. Davidson, 1852, 1874. Scale, 1:20,000.

—— *Same.* 1876; re-issued 1879.

San Luis Obispo Harbor. *See* Santa Cruz.

San Pablo Bay, California. From a trigonometrical survey under direction of A. D. Bache, superintendent. 1863. Scale, 1:50,000.

With two views; and a sub-sketch of the straits of Karquines.

—— *Same.* Corr. to 1877; to 1882.

—— *Same.* 1884. Scale, 1:40,000.

San Pedro Harbor, California. Reconnoissance by the hydrographic party under Lieut. James Alden, U. S. N. 1852. Scale, 1:30,000.

—— Preliminary chart. 1859. Scale, 1:30,000.

On the same sheet is: Anchorage and vicinity of Santa Barbara. Preliminary survey, 1855. Scale, 1:40,000.

San Pedro and Wilmington harbors, California. 1883. Scale, 1:25,000.

—— *Same.* Issued October, 1886. Scale, 1:40,000.

San Simeon Harbor. *See* Santa Cruz.

Santa Barbara, California. Preliminary sketch. Topography by A. M. Harrison. Hydrography by the party under Lieut. James Alden, U. S. N. 1853. Scale, 1 : 20,000.

With a view of the town and mission.

——— 1870. Triangulation by G. Davidson and W. E. Greenwell, 1862-3. Topography by A. M. Harrison and W. E. Greenwell, 1852, 1870. Hydrography by E. Cordell. 1869. Scale, 1 : 20,000.

Without view.

——— *Same.* Issued 1877; corr. to 1884.

Santa Barbara channel, California. Preliminary chart of eastern entrance. Topography by W. M. Johnson. Hydrography by the party under Lieut. James Alden, U. S. N. 1857. Scale, 1 : 80,000.

Includes sketch of Point Hueneme. 1857.

Santa Barbara Islands. 1896.

Santa Catalina Island. *See* Catalina.

Santa Monica Bay, California. Published June, 1896. W. W. Duffield, superintendent. (Date of first publication, 1893.) Scale, 1 : 40,000.

Aids to navigation corrected from information received to June 20, 1896.

Santa Cruz Harbor and vicinity, California. Topography by A. M. Harrison, assistant. Hydrography by the party under Lieut. James Alden, U. S. N. 1854. Scale, 1 : 40,000.

With chart and view of Point Ano Nuevo anchorage.

——— *Same;* corr. to 1884.

Santa Cruz, San Simeon, Coxo, and San Luis Obispo harbors, California. Reconnoissance by the hydrographic party under Lieut. James Alden, U. S. N. 1852. Scales, 5/8 and 3-10 m. to 1 in.

Shelter Cove, California. 1881. Triangulation and hydrography by A. F. Rodgers, 1871. Hydrography by Lieut. H. E. Nichols, U. S. N., 1880. C. P. Patterson, superintendent. Scale, 1 : 15,000.

—— 1898. Scale, 1 : 15,000.

—— *See also* Mendocino City.

Suisun Bay, California. From a trigonometrical survey (1856-67), under direction of A. D. Bache, superintendent. Published in 1867. Scale, 1 : 40,000.

—— *Same,* 1872; 1883, corr. to 1884.

Tomales Bay, California. Preliminary chart. From a trigonometrical survey under the direction of A. D. Bache, superintendent. 1861. Scale, 1 : 30,000.

—— *Same.* 1863. (Topography completed.)

—— *Same;* corr. to 1878; to 1884.

Trinidad Bay, California. Reconnoissance by the hydrographic party under Lieut. James Alden, U. S. N. 1851. Scale, 1 : 20,000.

Trinidad Harbor, California. U. S. Coast Survey, Benjamin Peirce, superintendent. 1873. Triangulation and topography by A. F. Rodgers, assistant in 1870. Hydrography by G. Bradford, assistant in 1872. Astronomical observations by G. Davidson, 1853. Scale, 1 : 15,000.

—— *Same.* 1874; corr. to 1884; to 1886.

Western coast of the United States. Reconnoissance from Monterey to the Columbia River by the hydrographic party under the command of W. P. McArthur, Lieut. U. S. Navy and assistant U. S. Coast Survey, and W. A. Bartlett, Lieut. U. S. Navy, assistant. Published in 1850. Three sheets. Scale, about 1 : 900,000.

With views. Extremely rare; I have seen 3d ed. only.

Western coast of the United States. Reconnoissance by the hydrographic party under the command of Lieut. James Alden, U. S. N., assistant. Geographical positions by G. Davidson. 1853-4-5. Scale, 1:1,200,000.

Sheet 1. San Francisco to San Diego. 1853.

Sheet 2. San Francisco to Umpquah River. 1854.

Sheet 3. Umpquah River to the boundary. 1855.

With views. Numerous corrected editions of these maps exist. The U. C. library has editions of: Sheet 1. 1878, corr. to 1885. Sheet 2. 1854; 1878, corr. to 1885. Sheet 3. 1855, corr. to 1870, to 1885. "Umpquah," "Umquah" are variations in spelling.

See also Northwest coast; Pacific coast.

Wilmington and San Pedro Harbors, California. Published December, 1895. W. W. Duffield, superintendent. Scale, 1:40,000.

Aids to navigation corrected from information received to October 26, 1897.

——— *See also* San Pedro.

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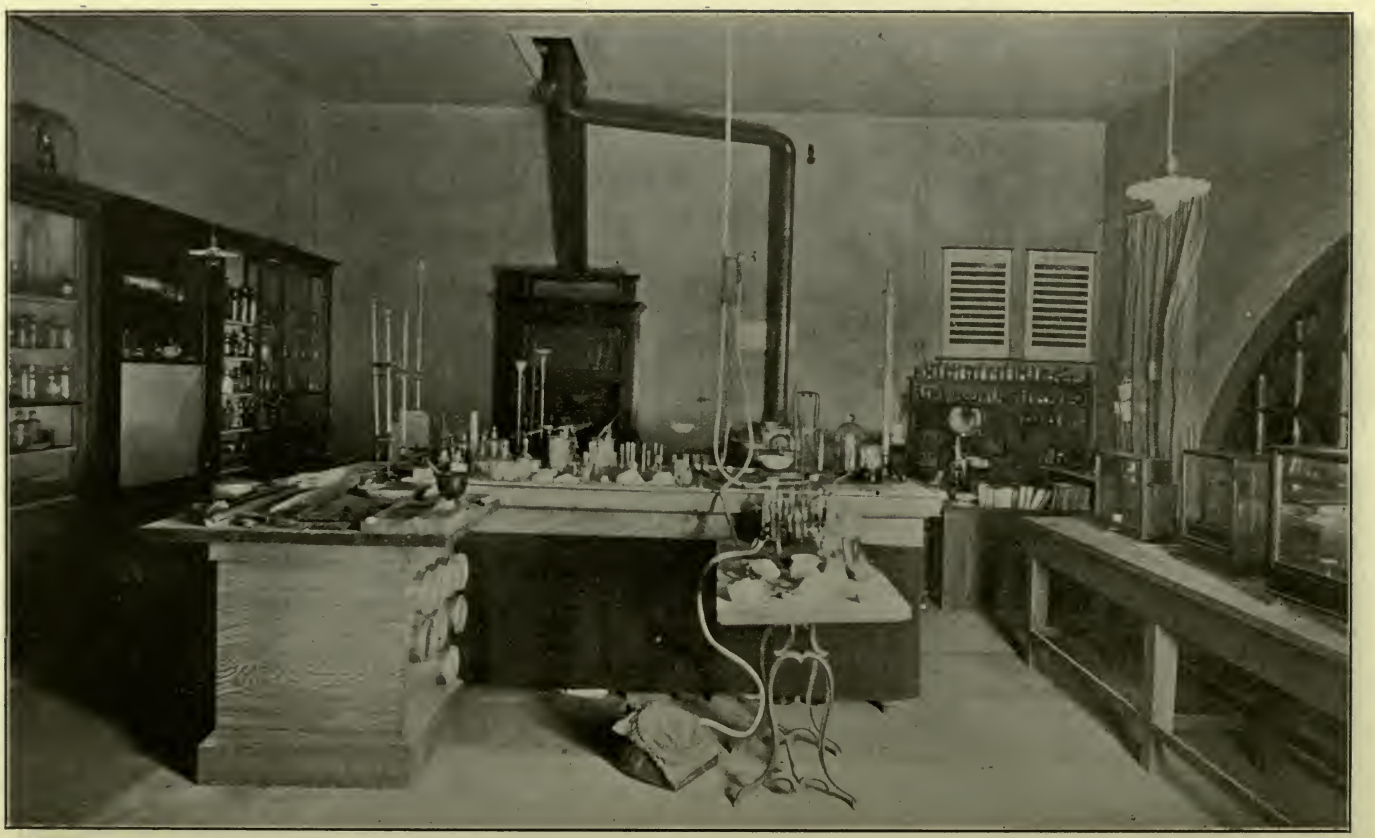

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IN PREPARATION.

Register of Mines, with map, Butte County.
Register of Mines, with map, Mariposa County.
Register of Mines, with map, Kern County.
Bulletin—Uses and Application of California Oil.
Bulletin—Gems and Jewelers' Material of California.

Samples of any mineral found in the State may be sent to the Bureau for identification, and the same will be classified free of charge. It must be understood, however, that *no assays, or quantitative determinations, will be made.* Samples should be in lump form if possible, and marked plainly, on outside of package, with name of sender, postoffice address, etc., and a stamp should be enclosed for reply.

MINERAL PRODUCTS OF CALIFORNIA FOR 1902.

Mineral Product.	Quantity.	Value.
Asphalt	34,511 tons	$349,344
Bituminous Rock	33,490 tons	43,411
Borax and Boric Acid	17,202 tons	2,234,994
Cement	171,000 bbls.	423,600
Chrome	315 tons	4,725
Chrysoprase	50 lbs.	500
Clays—For Pottery	67,933 tons	74,163
For Brick	169,851 M.	1,306,215
Coal	88,460 tons	248,622
Copper	27,860,162 lbs.	3,239,975
Fuller's Earth	987 tons	19,246
Glass Sand	4,500 tons	12,225
Gold		16,910,320
Granite	257,650 cu. ft.	255,239
Graphite	42 tons	1,680
Gypsum	10,200 tons	53,500
Infusorial Earth	422 tons	2,532
Lead	349,440 lbs.	12,230
Lithia Mica	822 tons	31,880
Lime	448,664 bbls.	369,616
Limestone	71,422 tons	90,524
Macadam	500,939 tons	418,548
Manganese	870 tons	7,140
Magnesite	2,830 tons	20,655
Marble	19,305 cu. ft.	37,616
Mica	50 tons	2,500
Mineral Paint	589 tons	1,533
Mineral Water	1,701,142 gals.	612,477
Natural Gas	120,968 M. cu. ft.	99,443
Paving Blocks	3,502 M.	112,437
Petroleum	14,356,910 bbls.	4,692,189
Platinum	39 ozs.	468
Pyrites	17,525 tons	60,306
Quicksilver	29,552 flasks	1,276,524
Rubble	1,555,076 tons	830,981
Salt	115,208 tons	205,876
Sandstone	212,123 cu. ft.	142,506
Serpentine	512 cu. ft.	5,065
Silver	(Commercial value)	616,412
Soda	7,000 tons	50,000
Slate	4,000 squares	30,000
Soapstone	14 tons	288
Tourmaline		150,000
Turquoise	510 lbs.	11,600
Total value		$35,069,105

RANK OF THE COUNTIES AS MINERAL PRODUCERS FOR THE YEAR 1902.

Shasta	$3,730,049
Kern	3,481,926
San Bernardino	3,308,002
Calaveras	2,371,013
Nevada	2,155,839
Tuolumne	1,830,329
Los Angeles	1,697,932
Amador	1,679,113
Siskiyou	1,094,745
Placer	1,018,487
Butte	926,251
Orange	824,742
Trinity	731,261
Fresno	670,058
Alameda	666,838
Mariposa	647,298
San Diego	562,730
Sacramento	555,138
Mono	549,298
Ventura	483,986
Santa Clara	471,122
Napa	410,968
San Francisco	395,100
El Dorado	381,578
Plumas	381,203
Riverside	334,622
Sierra	332,466
San Mateo	330,745
San Benito	328,231
Santa Barbara	$315,550
Lake	288,231
Marin	206,600
Santa Cruz	205,296
San Luis Obispo	200,391
Sonoma	198,803
Colusa	194,500
Inyo	184,414
Solano	170,140
Yuba	155,632
Madera	121,151
Humboldt	79,555
San Joaquin	70,598
Tulare	62,398
Contra Costa	55,141
Monterey	39,253
Lassen	23,654
Stanislaus	19,026
Kings	19,000
Alpine	14,129
Mendocino	9,898
Del Norte	5,450
Tehama	3,500
Merced	1,656
Yolo	450
Unapportioned	73,619
Total	$35,069,105

CALIFORNIA'S GOLD RECORD.

1848	$245,301	1877	$16,501,268
1849	10,151,360	1878	18,839,141
1850	41,273,106	1879	19,626,654
1851	75,938,232	1880	20,030,761
1852	81,294,700	1881	19,223,155
1853	67,613,487	1882	17,146,416
1854	69,433,931	1883	24,316,873
1855	55,485,395	1884	13,600,000
1856	57,509,411	1885	12,661,044
1857	43,628,172	1886	14,716,506
1858	46,591,140	1887	13,588,614
1859	45,846,599	1888	12,750,000
1860	44,095,163	1889	11,212,913
1861	41,884,995	1890	12,309,793
1862	38,854,668	1891	12,728,869
1863	23,501,736	1892	12,571,900
1864	24,071,423	1893	12,422,811
1865	17,930,858	1894	13,923,281
1866	17,123,867	1895	15,334,317
1867	18,265,452	1896	17,181,562
1868	17,555,867	1897	15,871,401
1869	18,229,044	1898	15,906,478
1870	17,458,133	1899	15,336,031
1871	17,477,885	1900	15,863,355
1872	15,482,194	1901	16,989,044
1873	15,019,210	1902	16,910,320
1874	17,264,836		
1875	16,876,009	Total	$1,379,275,408
1876	15,610,723		

INDEX.